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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
Gags of the Week
Serviceman Is a Gold Medal Hero
Air Conditioned Suits
Human Interest Story
Out of Our Mailbag

Stories of the Week

An unsound business venture into publishing ruined Mark Twain financially. Shortly afterward he was walking down the street, carrying a cigar box, when he encountered his doctor.

"Sam Clemens," finger-poked the Doc, "you know I've warned you about smoking so much."

"These are not cigars," confided the humorist. "I am moving my remaining possessions."

From the rear of a crowded elevator in New York's Commodore hotel a blonde sang out: "Coming out on Seven."

Up in front a male gallanted: "Shoot, kid. You're faded."

Two guys were stranded on a desert island when a bottle washed ashore.

Inside this bottle was a note which almost drove them nuts. It was a message from two gals who also were stranded on a desert island. No address. No transportation, either.

Gags of the Week

She was just a judge's daughter. But like her pa, she was ready to try anything.

After you have heard two eyewitness accounts of an auto accident, you begin to worry about the validity of the history books.

A minor operation is one performed on someone else.

Serviceman Is a Gold Medal Hero

Norman Gibson, a refrigeration serviceman in Tulsa, Oklahoma, deserves a medal. On a repair call to the home of Mrs. Gaynell Durham he encountered a frantic mother. Her seven-weeks-old baby had stopped breathing.

Serviceman Gibson administered mouth-to-mouth artificial respiration, and saved the baby's life.

Air Conditioned Suits

Soldiers of the future soon may be individually air condi-

(Concluded on Page 12, Col. 1)

GAMA Reports

'59 Home Gas Heating Sales Set Record

NEW YORK CITY—Sales of gas-fired residential central heating equipment in the first 11 months of this year surpassed any previous full year on record, the Gas Appliance Manufacturers Association reports.

GAMA's monthly telegraphic survey of manufacturers shows that all-time high shipments of furnaces and boilers combined to achieve the new peak. The 11-month combined total for three types of central heating equipment was 1,266,400. Sales for the 12 months of 1955, the former record year, totaled 1,173,600 units.

Edward R. Martin, GAMA director of marketing and statistics, said 87,100 forced warm

(Concluded on Page 4, Col. 1)

OHI Finds Home Heating Sales Up 8% for 11 Months

NEW YORK CITY — Actual shipments of oil-fired units and burners for central home heating were up 8% for the first 11 months of 1959 over the same 1958 period, reports the Market Research Dept. of the Oil Heat Institute of America, Inc. here.

The most striking rise in shipments was in boiler-burner units, which advanced 24% over 1958, the OHI said.

Warm-air furnace burner units were up 1%.

Burners sold separately for use in homes converting to oil from other fuels for replacement and for field assembly were ahead by 10%.

Eleven-month shipments of all types of oil-fired units and burners totalled 573,777.

Moffitt Heads Room Unit Dept At Westinghouse

COLUMBUS, Ohio — J. P. Moffitt has been named manager of the room air conditioner department of Westinghouse Electric Corp., it was announced by J. J. Anderson, major appliance division manager.

J. P. Moffitt

Moffitt succeeds C. W. Paulson, recently named marketing manager of the Westing-

(Concluded on Page 29, Col. 5)

Plan Signing Proposal Dropped From L. A. Code

LOS ANGELES—The controversial proposal that a registered engineer's signature appear on most heating and air conditioning plans has been dropped from the final draft of Los Angeles' new heating and air conditioning code, now awaiting passage by the city council.

The proposal was tabled for further study after architects and mechanical engineers could not agree on its desirability.

The new heating and air conditioning code, along with a new

(Concluded on Back Page, Col. 5)

More Manufacturers Bow Products for 1960 Market

Trane Offers Many New Products

LA CROSSE, Wis. — The Trane Co. expects to launch the most extensive new product program in company history, D. C. Minard, president, announced here recently.

This program will provide about 25% of anticipated 1960 total sales volume for its full line of air conditioning, heating, ventilating, and heat transfer products.

Leading the list of new products is the "Absorption Cold Generator" which has just been introduced. The absorption water chiller is completely hermetic, has single-shell construction and completely automatic operation, and is factory assembled and wired. It is available in nine sizes from 100 to 350 tons.

A new "Reciprocating Cold Generator" with a hermetic model of the Trane compressor is also available. Units are available in 11 sizes and range from 10 to 100 tons. The 10-ton units use R-12, others use R-22. All units are available with either

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Dunham-Bush Sales Earnings Up; New Products Coming

WEST HARTFORD, Conn.—Sales of Dunham-Bush, Inc. for the fiscal year ended Sept. 30 rose to $33,004,000 from $32,226,000 in the previous year and net earnings increased to $625,000, or 53 cents a common share, from $407,000, or 34 cents a share, Cecil Boling, president, reported to stockholders.

Boling also reported that Dunham-Bush shortly would be in production on a new line of larger reciprocating compressors for refrigeration and air conditioning.

He added that products planned for 1960 introduction include larger centrifugal pumps, steam converters, a new fin vector heating line, a new line of air handling units, roof-top air conditioners, a new line of larger air compressors, and additional unit cooler items.

Development of gas-driven compressors as well as various additional changes in existing lines will be continued, he said.

Regarding earnings, Boling told stockholders: "It has been encouraging that, after operating on a break-even basis for

(Concluded on Page 4, Col. 4)

Landmesser Heads Sales of York Packaged Products

YORK, Pa. — W. E. Landmesser, a veteran of 20 years with the company, has been named general sales manager for packaged products at York Div. of Borg-Warner Corp., it was announced by Austin Rising, vice president and director of marketing.

Landmesser

Landmesser has been manager of distribution. Prior to joining York in 1939 as sales manager, commercial air conditioning and refrigeration products, Landmesser was manager, commercial refrigeration, for General Electric Co. for 12 years.

In his new position, Landmesser will direct operations that now extend into more than 200 distributorships and many thousands of dealers, it was pointed out.

Under his supervision will be the York lines of room, residential, and commercial air conditioners; furnaces, automatic ice makers, refrigeration units, and similar products.

Landmesser said that his

(Concluded on Page 29, Col. 5)

Westinghouse Bows 9 Room Unit Models

CHICAGO—Flexibility of installation and quiet operation are top features of the Westinghouse nine-model room air conditioner line for 1960, the company announced.

The line is made up of three basic series—the "Presidential Mobilaire," the "Custom Mobilaire," and the "Custom Heavy Duty" series.

Also unveiled were two new, re-styled dehumidifier models said to be readily adaptable to both home and business use.

In addition, Westinghouse announced that two new "Frost-Free" refrigerators featuring a glide-out center drawer and four separate temperature storage zones pace its 12-model line of 1960 refrigerators.

The new models went on display at the opening of the Winter Home Furnishings Market here.

The new room air conditioner models have been designed around two features wanted

(Concluded on Page 29, Col. 1)

8 Room Units In Hotpoint Line

CHICAGO — Eight new air conditioners in three series ranging from a 7,500 B.t.u., 7½-amp., 115-volt model to an 18,000 B.t.u., 230-volt unit are offered by Hotpoint for 1960.

The company also announced that its 1960 refrigerator line boasts a new 18-cu. ft. combination refrigerator-freezer which occupies the same floor space as a 12-cu. ft. model.

"Use of a Hotpoint-developed refrigeration insulation material 50% thinner than types previously used permits Hotpoint to obtain more useable capacity without sacrificing valuable kitchen floor space," the announcement said. The spe-

(Concluded on Back Page, Col. 1)

Solar Heating Has Possibilities In Use With Heat Pump; Problems Are Many

WASHINGTON, D. C.— "Within most regions of the United States solar space heating is technically feasible but economically marginal," believes Dr. Richard C. Jordan, head of the Mechanical Engineering Dept., University of Minnesota.

"The future is relatively bright," however, in view of rising costs of fossil fuels, he declared at a one-day session on heating presented at the fall conferences of Building Research Institute here.

"Although solar energy is free for the taking, it is expensive to collect and to store," Jordan pointed out. "It is so diffusely spread that large collection areas must be involved, and it is so variably available that for space heating it must be stored and supplied upon demand.

"Engineering solutions to these problems require heavy expenditures for equipment, and the cost of solar heating is in the amortization and upkeep of the system," he continued. "Architectural concessions must be made, and it is only recently that the public has given limited acceptance to architectural designs which would permit the incorporation of a large solar collector surfaces."

Noting the gains made by electric heating and its possible widespread increase, Dr. Jordan commented that increasing demands for space cooling, "barring the development of economic, large scale thermoelectric cooling," point to the heat pump, and that "the use of solar energy as a total or partial heat source for the heat pump will make heat pumps more feasible to operate, particularly in northern climates."

In discussing various specific problems, Dr. Jordan indicated that flat plate solar energy collectors, which are the cheapest and most satisfactory for space heating systems, now cost $2 to $3 per sq. ft. Their price may eventually be reduced to $1 or less per sq. ft., he believes.

Cost of pumping the collecting fluid, usually air or water, through the collector cannot be ignored, nor can maintenance costs, he also emphasized.

Another major problem, he explained, results from the need for storing the solar energy collected. Studies over a 20-year period indicate that storage or auxiliary heat would have been required for periods as long as 11 days and more on several occasions in various U. S. cities due to extended cloudy periods.

It would appear, Dr. Jordan said, that it would be uneconomical to design storage for the extreme periods. Instead, auxiliary heat would be used "as an emergency measure during the relatively few cloudy periods of very long duration."

Heat source media employed in virtually all systems constructed to date, he commented, have been water, rock and gravel, or sodium phosphate dodecahydrate. Other materials and perhaps other methods can be developed for heat storage, however, it was explained.

Still another problem involved in using solar energy for space heating was cited by Dr. Jordan: "The mass adaptation of flat-plate collectors for solar heating to residential construction would not be feasible for typical houses on typical city lots at the present time."

The lots are too small, and "the typical detached single family house now predominant in urban areas neither lends itself aesthetically nor functionally to the proper adaptation of solar collectors," he declared.

Control over lot sizes, orientation, height of houses and surrounding obstructions would be required for effective use of solar energy, he indicated.

Brief descriptions of various solar heated structures were included in Dr. Jordan's discussion.

RETIRING Better Heating-Cooling Council President Marvin Mitchell (l.) congratulates new President R. S. (Shep) Doherty as BHC Executive Director Franklin Greene looks on. Mitchell is vice president of sales of Weil-McLain Co. and Doherty is a vice president of A. W. Cash Valve Mfg. Corp.

So. Carolina Contractors To Meet Feb. 19-20

COLUMBIA, S. C. — J. B. Walker, president of the South Carolina Association of Plumbing, Heating & Air Conditioning Contractors, announced that piping contractors will convene in Columbia Feb. 19-20 for the association's mid-winter convention.

Walker said an estimating clinic will be conducted in lieu of the usual schedule of speakers. Convention headquarters will be at Hotel Jefferson.

Death Notices

Albert G. Zumbrun

UTICA, N. Y. — Albert G. Zumbrun, former president of Brunner Mfg. Co., died suddenly recently in his home in Deerfield Beach, Fla.

He had retired Sept. 1, 1958, and moved to Florida after being associated for 33 years with Brunner Mfg. and its present owner, Dunham-Bush, Inc.

Benjamin F. Kubaugh

LOUISVILLE, Ky. — Benjamin F. Kubaugh, 80, inventor of a tube ice machine for Henry Vogt Machine Co. and an engineer there, died recently at his home.

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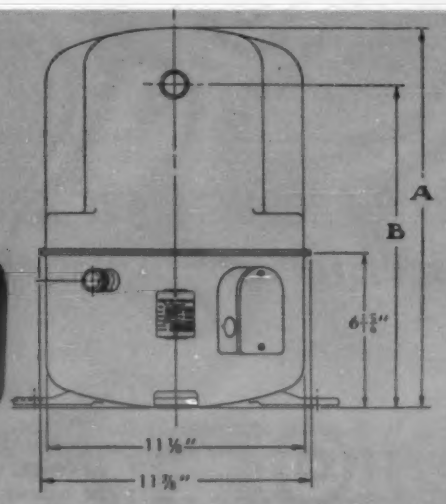

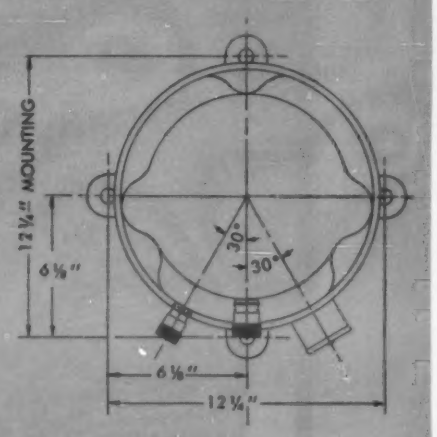

DIMENSIONS

Model	"A"	"B"
4U16-252	16⅛"	13⅜"
4U18-302	16⅛"	13⅜"
4U22-352	17⅛"	14⅜"
4U26-402	17⅛"	14⅜"

SINCE 1918 **Copeland** REFRIGERATION CORPORATION, Sidney, Ohio

PERFORMANCE DATA

Model	Capacity* B.T.U./Hr.	Full Load Amps.	Locked Rotor Amps.
4U16-252	29,400	13.6	70
4U18-302	32,800	17.9	70
4U22-352	39,400	21.4	126
4U26-402	45,000	27.8	126

*Capacity based on A.S.R.E. rating conditions: Evaporating Temperature 45 F.; Condensing Temperature 130 F. Suction Gas Temperature 65 F.; No liquid sub-cooling.

Gas Home Heating Sales Set Record--

(Concluded from Page 1, Col. 2)

air and gravity type furnaces were sent to market during November, a 2% increase over the 85,400 unit dispatched the same month of last year. The 11-month totals for this type were 987,900 this year and 788,100 last year, a 25.4% improvement.

Shipments of boilers, used in residential hot water and steam heating systems, numbered 11,100 for the month, an 11% increase over the 10,000 units sent to market the same month of 1958. The 11-month total for this year, 129,600, was 11.8% more than the 115,900 reported for the comparable period of last year.

The November shipments of conversion burners numbered 14,300, a 50.5% jump over the 9,500 units dispatched in the same month of last year. The 11-month totals for this type were 148,900 this year and 135,200 last year, a 10.1% increase.

November sales for all three types numbered 112,500 units, 7.2% more than the 104,900 reported for November, 1958. The January - through - November total, 1,266,400, was 21.9% above last year's 1,039,200 for the like period.

Other types of gas-fired heating equipment also had improved sales for the month and 11-month periods.

November shipments of vented recessed wall heaters numbered 41,300, an 8.1% increase over the November, 1958 total, 38,200. The 11-month totals for this type were 412,800 this year and 353,800 for last year, a 16.7% jump.

Room heaters and other types of direct heating equipment shipments for the month added up to 164,300, a 16.1% rise over the 141,500 units dispatched the same month of last year. The 1959 11-month total was 1,401,800, a 7.4% improvement over the 1,305,500 units sent to market in the same period of last year.

Floor furnace shipments for November numbered 8,800, a 14.3% increase over the 7,700 units reported for the same month of 1958. The 11-month totals for this type were 94,400 for this year and 92,200 last year, a 2.4% increase.

Unit heaters and duct furnaces, used mainly in commercial and industrial installations, numbered 17,200 for the month, a 28.4% increase over the 13,400 sold in the comparable month of 1958. This year's 11-month total was 144,500 units, a 21.1% increase over last year's 119,300.

Dunham-Bush Earnings Up--

(Concluded from Page 1, Col. 3)

the first six months of the fiscal year, our profit for the last six months was at an annual rate of $1,226,000. This is more indicative of what the company should accomplish as we are able to make further improvements in our operations."

Working capital as of Sept. 30 was $8,718,000, against $8,375,000 for the previous year.

Boling said that although the long steel strike may have some adverse effect, the company's sales and earnings in 1960 should show marked improvement.

Boling pointed out that in the 1959 fiscal year, the company concluded the consolidation of its compressor operations in West Hartford and the move of the former West Hartford production to the Michigan City, Ind. plant, as well as the move of the English subsidiary from London to Portsmouth, England.

"The cost of these moves was very substantial, both in direct costs and loss of production and sales," he said. "However, your company feels justified in having faced up to the necessity for this plant consolidations."

Dunham-Bush now operates five plants in the U. S., two in Canada, and one in England, with a combined floor space of 794,000 sq. ft. An additional 15,000 sq. ft. is presently being added at the English plant to permit the manufacture of compressors there.

"Substantial investments have been made in new tooling as well as reconditioning of our existing tooling, and this same program will be carried through 1960," Boling noted.

"During the year, our leasehold improvements at the Gainesville, Ga. plant were sold and our London plant was sold. Our vacant facilities at Utica, N. Y. have not been disposed of, but considerable interest has been indicated."

In discussing operations, Boling said company-employed field sales personnel now totals 190. In addition, 42 independent sales agents are selling company products.

CITIES SERVICE OIL COMPANY — ROMA WINE COMPANY — ALLEN B. DUMONT LABORATORIES, INC. — AMERICAN AIRLINES, INC. — GENERAL SERVICES ADMINISTRATION — J. M. FIELDS STORES — U. S. ARMY — FROZEN RITE, INC. — PACIFIC TELEPHONE & TELEGRAPH COMPANY — TEXAS FASTENER CORPORATION — RONEY PLAZA HOTEL — UNIVERSITY OF SOUTHERN CALIFORNIA — PHILLIPS PETROLEUM COMPANY — CHICAGO BRIDGE & IRON — GENERAL ELECTRIC — ATLANTIC & PACIFIC TEA COMPANY — ROBERT HALL CLOTHIERS — HUMBLE OIL COMPANY — OLIN MATHEISON — LOCKHEED AIRCRAFT AREOJET — SYLVANIA ELECTRIC — F. W. WOOLWORTH COMPANY — KAISER ENGINEERING CORPORATION — U.S. NAVY SAFEWAY STORES — CONVAIR — ATOMIC ENERGY COMMISSION — CONTINENTAL BAKING COMPANY — REPUBLIC AVIATION — FOOD FAIR STORES — NATIONAL CASH REGISTER — BURROUGHS CORPORATION — FEDERAL HOUSING ADMINISTRATION — EDISON COMPANY — RAND McNALLY & COMPANY — MINNESOTA MINING & MANUFACTURING BANK OF AMERICA — U.S. AIR FORCE — NEW YORK — FRANKLIN STORES — NATIONAL FOOD STORES — CENTRAL CASUALTY INSURANCE COMPA — COMPANY — PACIFIC GAS & ELECTRIC — RADIO CORPORATION OF A — KY LAGER BREWING GENERAL — T STORES SEARS & I — STATE FARM INS — MUZAK CORPORA — PORATION BOND STO — NSURANCE COMPANY — REFINING COMPANY — COMPANY NEW ENGLAND TELEP — LONIAL STORES, INC. GLENN MANUFACTURING COMPANY — CURTIS WRI — EL MUNDO, INC. — U. S. PLYWOOD — FORD MOTOR COMPANY OF CANADA, LTD. — DIPLOMAT HO — ILD CAMERA & INSTRUMENT COMPANY — AMERICAN THERMOS PRODUCTS — PACIFIC MURPHY MANUFACTURING CORPORATION — THE MAYTAG COMPANY — INTERNATIONAL BUSINESS MACHINES — NATIONAL BISCUIT COMPANY — ASIATIC PETROLEUM CORPORATION — INSULAR CHEMICAL COMPANY STANDARD LIFE & ACCIDENT COMPANY — EASTMAN KODAK COMPANY — UNIVERSITY OF OKLAHOMA — BELL AIRCRAFT MONARCH METALS WEATHERSTRIP COMPANY — McDONNELL AIRCRAFT CORPORATION — BETHLEHEM STEEL COMPANY — B-THRIFTY STORES, INC. — WAYNE PUMP COMPANY — ARMA CORPORATION — THREAD, INC. — AMERICAN OIL COMPANY TRANSCON FREIGHT LINES — AMERICAN CAN COMPANY — KANSAS CITY FIRE AND MARINE INSURANCE COMPANY — T G & Y STORES — BRITISH OVERSEAS AIRWAYS CORPORATION — RAND McNALLY & COMPANY — NEW YORK TELEPHONE COMPANY WESTERN ELECTRIC COMANY — AMERICAN MACHINE & FOUNDRY — W. T. GRANT COMPANY — PIGGLY-WIGGLY FOOD STORES J. C. PENNEY COMPANY — PENN FRUIT STORES — RUTGERS UNIVERSITY — U. S. MARINE CORPS — HOWARD JOHNSON'S KROGER COMPANY — CIVIL AERONAUTICS ADMINISTRATION — E. I. DuPONT De NEMOURS & COMPANY — SAHARA HOTEL

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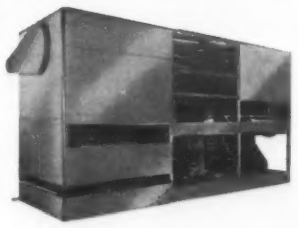

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Seim Retires from Westinghouse Post

HYDE PARK, Mass.—Harry E. Seim, vice president in charge of Westinghouse Electric Corp.'s Sturtevant division here has retired after 50 years of service.

Seim was elected in 1948 as head of the division which specializes in air-handling products, heating-ventilating equipment, and "Precipitron" electrostatic air cleaners.

Roderick Campbell Dies

TORONTO, Ont., Can. — Roderick Campbell, contractor who built some of the first refrigeration plants in Toronto, died recently. He was 76.

REVIEW of VACUUM for SERVICE ENGINEERS by Saunders & Williams

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Hupp Estimates Profit at $2 Million On $75 Million Sales—'60 Looks Better

NEW YORK CITY — Hupp Corp. will record sales of about $75 million in 1959 and earnings of approximately $2 million, equal to 50 cents per common share after taxes and preferred dividends, the New York Society of Security Analysts was told recently.

In 1958, Hupp earned 20 cents per share on sales of $56.5 million.

Appearing before the New York group for the first time, Hupp officials noted that November operations were highest in the company's history, with sales of more than $8 million and pre-tax net income better than 9% of sales, despite premium steel prices which increased material costs considerably.

Sales May Gain 20%

In forecasting 1960 prospects, John O. Ekblom, chairman, said "with our normal rate of growth, we see a 20% sales gain possible, and see earnings of around $1 per share within reach, provided the breaks favor us."

He pointed out that Hupp's sales have increased seven-fold and net worth more than five times since present management took over the company in March, 1955, while outstanding shares have less than doubled, from 2 million to a present 3.7 million.

"We have taken a building block approach to revitalizing Hupp Corp.," Ekblom stated, "using a material block of sales per share per year and a financial block of net profit per dollar of sales. Growth based on increasing net earnings per dollar of sales is positive insurance against dilution of shares, and we have followed this formula closely.

"When we took over Hupp, sales were about $5 per share per year and the company was losing money. Today sales are at a level of $20 per share per year and we have already demonstrated earnings capabilities of 10% before taxes," he said.

Acquisition Program

In commenting on Hupp operations, Don H. Gearheart, president, told the analysts that the number of Hupp stockholders has increased 25% during 1959, and that the company negotiated five new acquisitions in that period. He said 1959 was the best year in Hupp's 51-year history.

Referring to Hupp's recent acquisition of two leading process heating organizations, Gearheart declared it will "broaden our coverage of this field to the point of making us the largest single factor in industrial infrared heating. The dovetailing of personnel and products gives us major sales potential in this field."

Hupp's recent agreement to work with Curtiss-Wright Corp. in the exploration and development of solar energy and other heating devices for commercial and home use was described as combining Curtiss-Wright's considerable development work in this field with Hupp's "manufacturing and marketing know-how to bring those ideas that are economically feasible to market."

Gearheart said about 45% of Hupp's sales are in air conditioning and heating products—central residential, package and room air conditioners, heat pumps, dehumidifiers, gas and oil furnaces, space heaters, and gas infrared heating equipment.

Another 35% of the corporation's volume is in appliances—refrigerators, freezers, ranges, he stated. The balance is in aviation, automotive, service parts, and hydraulic products.

James F. Rowe, vice president and chairman of the finance committee, who also addressed the group, revealed that at Nov. 30, Hupp had current assets of $27,600,000 and current liabilities of $11,800,000, a current ratio of 2.34 to 1, and working capital of $15,800,000. Cash and receivables at that date totaled $19,500,000, and more than covered the sum of total debt and all reserves of $14,600,000. Net worth at Nov. 30 aggregated $26,300,000, he said.

Sherer Names Pahl

MARSHALL, Mich.—Appointment of Lawrence J. Pahl as assistant sales manager has been announced by John S. Twist, vice president and sales manager of Sherer-Gillett Co.

Pahl joined the company in 1955 as salesman in the local factory territory; served as divisional sales manager in Indiana during 1957 and 1958; and has served the home office since that time.

ARI Opens Second Year of Certification With New Unitary Equipment Directory

WASHINGTON, D. C.—Keynoting completion of the first year's operation of the ARI Unitary Air-Conditioner Certification Program, and the beginning of the second, the Air-Conditioning & Refrigeration Institute has issued the first 1960 Directory of Certified Unitary Air Conditioners, in which some 1,995 models of about 50 participating manufacturers are listed.

The directory is being distributed, as were its predecessors in 1959, to dealers and contractors throughout the country, to architects and consulting engineers, to government personnel concerned with air conditioning at national, state, and local levels, and is available to the public through the dealer and contractor outlets of the participating manufacturers.

During 1959, the "shakedown" year of the certification program, it has proven very successful, according to Geo. S. Jones, Jr., managing director of ARI. As a result, a number of manufacturers who did not participate in 1959 have signed contracts as participants in 1960, it was stated.

Meanwhile, continuing promotion of the program through advertising and publicity has been authorized by participating companies, and as one phase of this the National Association of Manufacturers is preparing a film for use on TV stations outlining the program and the benefits of air conditioning generally.

When you compare copper fittings...

remember David and Goliath!

ACTUAL BURST TEST of installed 1/2" NIBCO wrot copper tee shows that the tubing burst at 3760 p.s.i., and that NIBCO wrot fittings are stronger than the tube they join . . . an extra margin of safety that far exceeds pressure demands of liquids or gases in a copper system.

Like David of old, NIBCO wrot copper fittings are strong where it counts. Wall thicknesses in the NIBCO "zone of strength" (as shown in the cutaway tee, for example) are not made to the "L" minimum ASA standard, but have heavier than "K" wall thickness of metal...additionally densified in processing. This is but one reason why NIBCO fittings are specified by the nation's leading contractors and service organizations. See your NIBCO wholesaler, or send coupon for ***FREE CATALOG.***

NIBCO

NIBCO INC. — Dept. K-6201, Elkhart, Indiana
Please send "Catalog I" of NIBCO fittings.

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address _____

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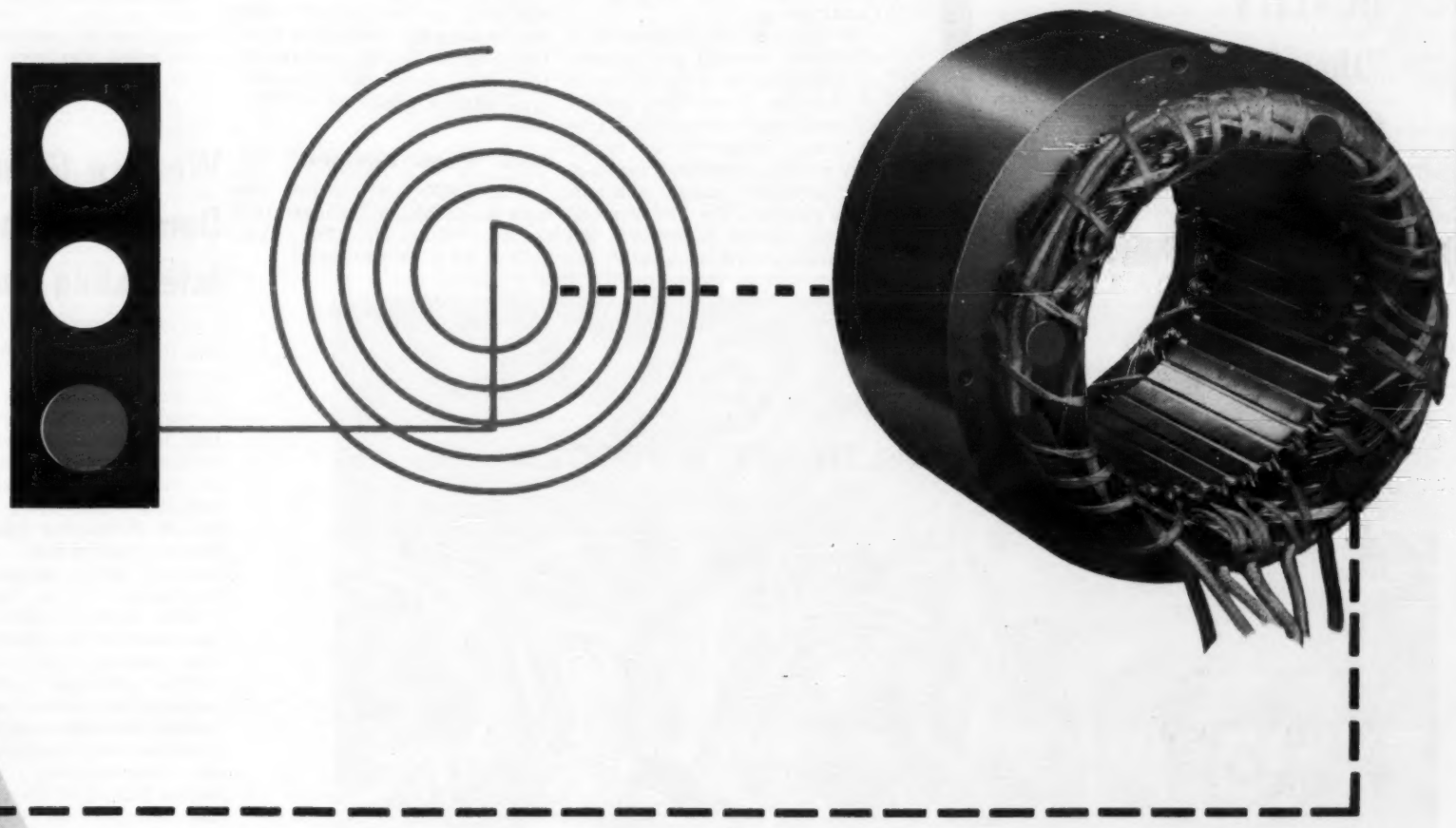


New Westinghouse *Guardistor* motor stops motor failure caused by excess heat

At last, positive protection against motor overheating with this unique Westinghouse motor development. Smaller than an aspirin, the heart of the Guardistor* motor is a PTC† Thermistor embedded in the motor windings to sense temperature rise immediately.

With normal motor temperatures, the thermistor has low resistance which remains nearly constant up to a predetermined critical temperature. At this temperature, a 100 to 1 or more increase in resistance occurs for a small increase in temperature. The resistance stops current flow activating a control designed to "WARN" or "STOP" a motor failure.

The Guardistor motor and associated control integrates all heat-causing factors of load, ambient, and power supply right in the motor windings to give you complete protection against motor burn-out.

*Trade-Mark
†Positive Temperature Coefficient

J-22155-AR

YOU CAN BE **SURE**... IF IT'S

Westinghouse

WATCH "WESTINGHOUSE LUCILLE BALL-DESI ARNAZ SHOWS"
CBS TV ALTERNATE FRIDAYS

UA Decision Clarifies Depository Payment Controversy

LOS ANGELES—A representative of the United Association has rendered a decision in a controversy over payment of "fringes" into a depository when a contractor from this area brings an employe into another.

UA Locals 364 and 398, operating in Riverside and San Bernardino counties, contended that when a contractor from the Los Angeles area brought an employe into their area, the employer was required to make health and welfare, vacation, and pension payments into the depository in the Riverside-San Bernardino area.

Refrigeration and air conditioning contractors asked Peter T. Schoemann, UA general president, to have this matter investigated. At a recent meeting where all parties were represented, a decision was rendered by Special Representative C. F. Voss of the Refrigeration & Air Conditioning Div.

Te decision was that where a contractor brought in a member of Refrigeration Fitters Branch of the UA, Local 250, to the Riverside-San Bernardino area on construction work, health and welfare, vacation, and pension payments should continue to be paid into the Los Angeles-Orange County depository, but payments should be made by the employer of that employe to the Riverside-San Bernardino depository for their training and education fund.

However, where the contractor employs men through either Local 364 or 398, or through any other local besides Refrigeration Fitters Branch of Local 250, all fringes must be paid to the depository established by the local involved.

It was also reported that the matter of service work in Riverside and San Bernardino Counties is under negotiation "to the end that normal service work can be done by contractors from Los Angeles-Orange counties in the San Bernardino-Riverside area with a minimum of difficulty."

for
QUALITY
"there's nothing like
G-B DUCT"— the proven
"prefab" glass fiber duct! See full
details on page 24.

New Firm Formed

PHOENIX, Ariz.—A new firm here is Carbaugh Refrigeration Service, 5113 N. 17th Ave., opened by G. H. Carbaugh.

HAROLD P. HAYES (l.), Dean of the College, San Luis Obispo Campus, University of California, accepts check from William P. Tennity, president of Western Air Conditioning Industries Association, for use in acquainting high school and junior college students with opportunities available in the air conditioning industries.

* * *

Western Group's Donation Aimed at Interesting Youth

LOS ANGELES — Emphasizing its interest in encouraging young men to follow careers in the fields of temperature conditioning, Western Air Conditioning Industries Association recently presented a check to California State Polytechnic College Air Conditioning Dept., for use in developing relations between that school and high schools and colleges of California.

This is the second donation presented by the association for this purpose.

"The program is intended to acquaint high school and junior college students with the broad opportunities available in the air conditioning industry," stated Harold P. Hayes, dean of the college, San Luis Obispo Campus, University of California, in accepting the check.

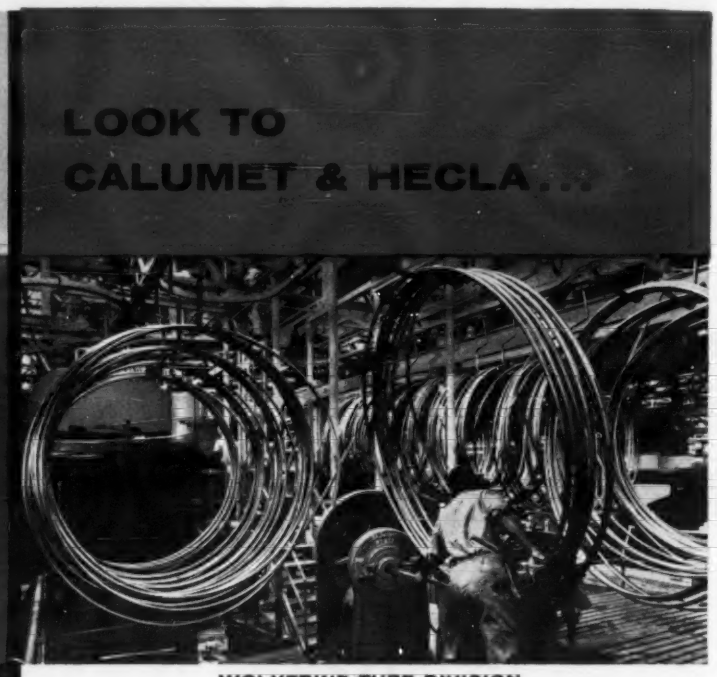
The college offers a varied educational program designed to prepare students for positions in the air conditioning industry and will visually demonstrate many features of this program at the coming Western Air Conditioning, Heating, Ventilating & Refrigeration Exhibit & Conference to be held April 27 to 30, 1960 in Shrine Exposition Hall, Los Angeles.

Sponsored by the Western Air Conditioning Industries Association, the biennial event "will be the largest in the history of the association," it was reported. "The main floor and lower level of the huge exhibit hall will be filled with exhibits showing the latest products and improvements in this field. Many informative and interesting technical sessions, seminars, and panel discussions are also scheduled."

Arthur J. Hess, chairman of the technical sessions, has designated April 28 as Engineer's Day; April 29 as Contractors' Day; and April 30 as Practical Applications Day.

Show headquarters are at 3443 S. Hill St., Los Angeles. Fred J. Tabery is exhibit manager.

REPRINTS
SELLING FOR PROFTT.
By Frank Klein—Only $1.00 ea. Clip this ad and mail with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.



WOLVERINE TUBE DIVISION

Mining . . . refining . . . lumbering . . . agriculture . . . manufacturing — diversified indeed are the product and market areas of the companies making up the industrial family of Calumet & Hecla, Inc.

Of course, Calumet & Hecla has for many years been recognized as a copper producer. Since 1859, in Michigan's Upper Peninsula, the Calumet Division has been mining Lake copper — one of the purest forms of copper ore. The refined product is sent to Wolverine Tube Division for conversion into brass and copper tubing for plumbing installations, refrigeration, chemical and petroleum processing as well as for a wide variety of general industrial applications. Wolverine Tube is also a prime manufacturer of aluminum extrusions, and drawn and extruded aluminum tube.

The Calumet Division is widely recognized for the quality of the grinding balls and mill liners it manufactures for the mining industry, as well as for the agricultural oxides it produces for better farming.

From the trees in the vast forest areas of Calumet & Hecla holdings, Goodman Lumber Division manufactures plywood and other wooden products. C&H properties have turned up high grade uranium. The development of these properties and the extraction of this valuable element is the responsibility of the Uranium Division.

If any of the above products fall within the scope of your company's requirements, remember that you pick a winner every time you deal with a member of the Calumet & Hecla industrial family.

When you need tubing—LOOK TO WOLVERINE!!

CALUMET & HECLA, INC.
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In Canada:
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WOLVERINE TUBE DIVISION
CANADA VULCANIZER & EQUIPMENT CO. LTD.
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Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA.
SALES OFFICES IN PRINCIPAL CITIES.

'60 Emerson Radio Room Units Feature 'Automatic, Instant' Installation

EMERSON "Kool Mount" air conditioner Series "Y."

JERSEY CITY, N. J.—Emerson Radio & Phonograph Corp. has announced its full 1960 line of "Quiet Kool" air conditioners highlighting the "Kool-Mount" feature which is claimed to provide for "the automatic instant installation of an air conditioner in a window without the use of any tools."

Arnold Henderson, director of sales, declared that since the inauguration of the Kool-Mount feature in the 1959 line, it has met with such acceptance that the company has extended this development to a broader range of models in the new series.

Henderson said the 1960 line now includes a new "High Capacity" Series, available in 1, 1½, and 2-hp. models with cooling capacities of 7,000 to 15,000 B.t.u., that are all equipped with the Kool-Mount device.

Henderson also pointed out that two reverse cycle "heat-pump" models with heating capacities of 8,500 to 10,000 B.t.u. are being introduced as an integral part of the new series. These two reverse cycle models, he said, are also available for the first time with the automatic installation feature.

All models in the entire series are identical in outward appearance. Therefore, the company said, the dealer can display only one unit on the selling floor from which he can merchandise the complete line.

"All models are equipped with a permanent slide-out filter that can be removed for cleaning without disassembling the front, a two-speed fan, fresh air intake and a pushbutton control center that includes air directional adjustment wheels, automatic pushbutton control panel for all operations, and automatic thermostat," it was pointed out.

"There are no side louvers, and blower wheels are used for both condenser and evaporator to maintain quieter operation."

Kool-Mount Series—Automatic Window Mount

Model	B.t.u.	Hp.	Volts	Amps
6Y7A	7,000	1	115	7.5
8Y1A	8,500	1	115	12.0
10Y2A	10,000	1	230	....
10Y8A	10,000	1	208	....
Kool-Mount Reverse Cycle Series				
8Y1A-8	8,200	1	115	12.0
10Y2A-R	9,500	1	230	....
Kool-Mount High Capacity Series				
10Y1A	10,000	1	115	12.0
12Y2A	12,500	1½	230	....
12Y8A	12,500	1½	208	....
15Y2A	15,000	2	230	....
15Y8A	15,000	2	208	....

Stereo Recording Demonstrates Gibson 71-S Conditioner

GREENVILLE, Mich. — A specially-cut stereo recording that demonstrates Gibson Refrigerator Co.'s 71-S air conditioner with air sweep is now available to Gibson dealers, according to Dale Heinlen, manager of advertising and sales promotion.

The sales message moves from one speaker to the other as it tells the air sweep story.

Heinlen says that the stereo record is a natural for demonstrating the air sweep feature. Not only does the sound moving from one speaker to the other simulate the air moving from one corner of the room to the other, but it also gives the dealer an excellent way to demonstrate his stereo unit. Heinlen estimates that over 95% of Gibson's dealers handle a stereo line.

Welbilt Expands Room Conditioner Line to 18 Models for 1960

MASPETH, L. I., N. Y.—Three series of room air conditioners embracing 18 models in all are being offered for 1960 by Welbilt Corp.

The expanded line includes a 7½-amp., 6,400 B.t.u. "Mighty-Mite" model for casement windows, eight "PowerMaster" integral chassis models, and nine "Wall-Slim" models with slide-out chassis.

The Mighty-Mite measures 14⅝ in. wide, 10¾ in. high, and 20 in. deep. It has a thermostat, permanent filter, two-speed fan, and integral chassis. It operates on 115 volts.

The PowerMaster units are all 1 hp., but capacities vary from 6,400 to 10,800 B.t.u. They have all the features of the Mighty-Mite plus fresh air intake and adjustable grilles. Three models operate on 115 volts, one on 208, and one on 230 volts. Three models, one in each voltage, provide reverse cycle heating with automatic condenser defrosting feature.

WELBILT "Wall-Slim" room air conditioner.

PowerMasters measure 26½ in. wide, 15 in. high, and 16 in. deep.

The Wall-Slim series is equipped with 1½ and 2-hp. compressors. Cooling capacities range from 11,700 B.t.u. to 15,300 B.t.u. They have all the features of the PowerMaster except the integral chassis plus exhaust. All units measure 27 in. wide, 19½ in. high, and 17 in. deep.

In the Wall-Slim series are 1½-hp. units in 115, 208, and 230 volts and, with reverse cycle heating, in 208 and 230 volts. Two horsepower models are available in 208 and 230 volts, with and without reverse cycle heating. All are 12 amp. units.

All Welbilt air conditioners are equipped with three-prong plug sets.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Beat a path to Davison

for better moisture trapping

For years, refrigeration and dehydration experts have put their faith in Davison PA-400. No higher capacity desiccant has ever been needed. NOW ... if your specialized requirements for ultimate moisture removal—maximum drying at extremely low concentrations of moisture—call for a desiccant with even more unique capabilities, Davison suggests the newest companion to PA-400 ... DAVISON MICROTRAPS.

DAVISON MICROTRAPS are now available in quantities to meet your production requirements. For more complete information about this modern chemical moisture-remover, write or phone us today.

Department 25401

W.R. GRACE & CO.
DAVISON CHEMICAL DIVISION
BALTIMORE 3, MARYLAND

NWAHACA Told

Sizing Central Electric Furnace System Requires Same Methods as Gas or Oil

ST. LOUIS—Methods of calculating a central forced warm air or year-round system using an electric furnace are no different than for a system using a conventional fuel, asserted Don Winegardner, vice president, the Majestic Co., Inc., speaking at the 46th annual convention of National Warm Air Heating & Air Conditioning Association here.

The association's regular manuals can be used in figuring heat loss and gain, insulation has the same "U" factor regardless of the fuel, and even though the ducts are smaller (thanks to more insulation), their sizing is also based on data in the manuals, he explained.

Mfr. Solves Blower Problem at Factory

While smaller ducts require blowers with more static pressure capacity, the latter problem is solved by the reputable manufacturer at the factory and thus does not involve the dealer-contractor, Winegardner said.

"By increasing the insulation in the home to the level that it will do the most good, we are able to substantially reduce the operating cost of heating the home regardless of the type fuels we use," he explained.

"Some members of the electric industry refer to a term '6, 4, 2' for insulation. They mean by this 6 in. in the ceiling, 4 in. in the side wall, and 2 in. in the floor. This, of course, is a rule-of-thumb reference which they used because they were not as familiar with the many variable types insulation as we in the warm air heating industry are," Winegardner said.

"Every one of us must continue to use the manuals when referring to insulation rather than this obsolete reference. We certainly do not size our jobs by the reference 'a 9 by 12 rug calls for a 9 by 12 register.'

Installer Encouraged To Be Responsible for Proper Installation

"The electric industry encourages the electric resistance heating installer, who is usually an electrician, to be responsible for the insulation in the home. This is wise on their part because it is necessary to have a well insulated home to make electricity as a fuel practical.

"Several of our warm air heating dealers are also in the insulation business, and this would work very well for them. Those who are not in the insulation business still should be sure that the house is insulated to the fullest, most practical degree and that they figure the heat loss and size the equipment according to this maximum practical insulation standard," Winegardner suggested.

"Now that we have reviewed the insulation needs for electric warm air heating and find there is 'no mystery' to them, I would like to bring out a very important factor which you need to keep in mind. We have now insulated a house so that the heat loss is considerably less per square foot than a house that would be considered adequately insulated for other fuels.

"This will point up to us that we have a much lower heat loss requirement but still have a large size home requiring the same long ducts with added corresponding duct resistance. Another point that we need to consider at this time is that this same well insulated home will require a smaller air conditioning unit with less air delivery than the home not so well insulated, but we still have the long delivery duct system.

"This is the part of an electric warm air installation that has caused some dealers concern," he commented.

"As I stated earlier, we should use our National Warm Air manuals exactly as they are without any fear of difficulty on this part. The delivery from the heating and cooling equipment to the room should be no different than that for other fuels except that we probably will now use slightly smaller diffusers or registers and ducts to each of the rooms because the heat loss and heat gain in each room will probably be slightly less than the lesser insulated home.

"Again, this information will come directly from the use of the manual so you should have no worry as to which fuel you will use.

"We know that for cooling, a given number of cubic feet of air per minute is required over the cooling coil. Sufficient blower capacity must be applied to the cooling unit to not only give the cubic feet of air per minute but the pressure be great enough to push it through the entire system and expell the air from the registers at the velocity desired.

Dealer-Contractor Must Make Sure He Buys Reliable Equipment

"This, then, means that the equipment manufacturer is the one who needs to be concerned with the problem of electric heating versus the other fuels, rather than the heating dealer. Of course, it is necessary that the heating dealer make sure that he does buy equipment that will give him this delivery," Winegardner cautioned.

"The proper installation of a furnace using oil or gas as the fuel requires that the temperature rise across the furnace be adjusted by the installer as recommended by the manufacturer. A.G.A. and U.L. laboratories test heating equipment on the basis of .15 external static delivery pressure from the furnace for furnaces rated under 100,000 B.t.u. and at .20 external static pressure for furnaces from 100,000 B.t.u. to 200,000 size. This static, of course, is required only when the furnace is used for heating.

"The laboratories have also established that if the furnace

is to be used for an add-on air conditioning unit, the furnace should be sized so that it will deliver .5 external static pressure, .3 in. to overcome the resistance of the cooling coil and .2 in. for the remainder of the delivery system.

"I point out these facts to you because I feel that we should realize that we are now going to have a slightly higher duct resistance or static requirement for this electrically heated home because of the longer duct systems per thousand B.t.u. of heating and cooling requirement.

UL May Change Static Delivery Needs

"There is no change at this time in the Underwriter's requirements for the static delivery of an electric warm air furnace, but this is being studied and it may be possible that future UL requirements for electric warm air furnaces will reflect a slight change in the external static test requirements so that when you as a dealer receive a UL-approved electric warm air furnace, it will have enough blower capacity to more than offset the extra duct length versus the B.t.u. size." Winegardner said.

"In balancing the electric warm air heating installation, we will use the same method whether the furnace is of the modulated heat and/or air delivery type or of a full power-off design. To properly adjust the system, we go through the same procedures as for the other type fuel except that we make sure our furnace has been on sufficient time so that all of the heat available from the furnace is in operation.

"After we are sure the furnace is operating at its peak capacity, we should balance each room according to Manual 6 for comfort air circulation. The adjustment for cooling would be exactly the same as recommended in Manual 6," he explained.

"Most electric warm air furnaces will have a modulated supply of heat and probably a modulated air supply. I feel that the modulated heat supply will be a requirement of the utilities, and we should take advantage of this because it gives us a much better chance to give the fullest comfort to the homeowner," Winegardner said.

'Electric Furnace Is 100% Efficient'

"Let us look now at an electric warm air furnace that has a modulated supply of heat with a constant speed blower operation rated at, for example, 82,000 B.t.u. input and output capacity. Incidentally, I might point out that an electric furnace for all practical purposes is 100% efficient, not only for the day it is delivered to the house, but many years later. This is one point we must consider in sizing our furnace. We may be able to use a small size unit.

"We have our house adjusted for the proper air velocity from the registers and the correct amount of B.t.u. of heat being delivered to each room to meet the requirements at design temperature.

"Now we may assume that in the early fall days only a small amount of heat is required to keep the home at the comfort level and, therefore, we do not get an 82,000 B.t.u. output from the furnace but possibly only ¼ of this amount or about 21,000 B.t.u. of heat.

"Since our blower was adjusted to give proper delivery of 82,000 Bt.u., we will find that the air leaving the registers is very little warmer than the room temperature, but if the system has been installed entirely according to the manuals for a good perimeter system, this air temperature will be of no concern because we have installed the job and adjusted it to Manual 6 for comfort air circulation.

Use of Modulated Air Delivery

"It is conceivable that some register may be placed improperly and a cold draft would be felt by the homeowner and considered unsatisfactory. This, of course, brings up the possibility of modulated air delivery as well as modulated heat, which can be accomplished by many methods.

"We must remember that about the only time of year this case of the lower B.t.u. supply with the full air delivery applies in operation is in the early fall or late spring periods when the outside temperature is probably in the high 50's or 60's and, therefore, the radiation from our bodies to the cold walls is at a low rate and the discomfort condition is considerably minimized," Winegardner explained.

The use of a modulated heat supply with a constant speed blower is complete satisfactory in an electric warm air heating installation when all consideration and care has been taken in the installation and adjustment; but, of course, a further improvement in the comfort quality is possible with the modulation of the air in conjunction with the modulation of the heat supply.

'20% Safety Factor Can Be Reduced'

"Many dealers base the sizing of their heating equipment upon the heat loss of the home, plus an allowance of a 20% safety factor. We feel this safety factor can be lowered somewhat because there is no loss in efficiency in the electric furnace over the years of operation.

"From the best technical information we have, we found that every dime going into the operation of the electric furnace blower motor is returned to the home in B.t.u. of heat, either in the heat from the motor or in some other way. This still keeps our unit at 100% efficiency.

"In fact, if we could design a blower and motor so inefficient it would use a tremendous amount of electricity, we would probably have a fine electric furnace with nothing else required but the control," Winegardner suggested.

"Humidity can be controlled completely in an electric warm air furnace in the summer by use of the air conditioner, possibly also using the electric furnace for reheat, and in the winter by the use of any good humidifier," he also said.

"Filtering of the air in the home is also simple. Any type filter you now use on other systems will work to the fullest degree on your warm air electric furnace system."

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Manufacturers don't have to worry about Mrs. Perkins' "frettin"

"Young man, I've told you, and told you that furnace just doesn't heat my bedroom closet. Now I want it fixed!"

About this time you have to set your jaw and once more explain the furnace you installed can't do everything.

This type of problem is foreign to manufacturers, but not to dealers. Lennox is acutely aware of the many "little things" their dealers have to put up with.

This knowledge comes from constant contact in the field, for Lennox values customer satisfaction as much as you do.

We have learned through experience and value the fact that the heating and air conditioning business is *centered around the dealer!*

If you aren't getting the solid backing you deserve from your supplier, take the time to get the complete Lennox story.

Call or write today. No obligation.

LENNOX *World leader in indoor comfort for home, business, schools*

Lennox Industries Inc. founded 1895 • Marshalltown, Iowa • Columbus, Ohio • Syracuse, N. Y. • Fort Worth, Texas • Salt Lake City, Utah • Decatur, Ga. • Los Angeles, Calif. • Des Moines, Iowa • Lennox Industries (Canada) Ltd. • Toronto, Montreal, Calgary and Vancouver

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

tioned. Under a contract with the U.S. Navy, Westinghouse is developing a thermoelectric air conditioner to heat or cool a special protective garment.

Potential users: a space traveler or ballistic missile jockey ("artillery-cavalry" of the future).

Cooling will be accomplished by passing an electric current through small pellets of a semiconductor material. When the current is reversed, these pellets will heat. Controls by Penn and M-H.

Your son and mine may be wearing these air conditioned suits some day! But lets hope not—and pray fervently.

Human Interest Story

1627 N. Holyoke
Wichita, Kansas

Editor:

Perhaps the request that I make here is somewhat unusual; but from reading you for quite a while in the NEWS it appears that you might take some interest in my activities.

Most of my life I have had the urge to be an ice skater. In Kansas it is quite a chore to become one. About 18 years ago I decided to build a back yard rink because of the lack of public facilities. The only solution seemed to be to "do it yourself."

Of course in 1942 I was quite young, and had little understanding of refrigeration. At the same time, refrigeration dealers had little understanding of me. My first rink was not much of a success because:

1. The ammonia nearly got me when I purged oil out of the evaporator.
2. Bumblebees took up residence in the coils.
3. I designed the cooling tower too small.
4. The fire department paid an unfriendly visit, suggesting that I tear the rink down because the walls were made from bailed straw.

My next venture was a direct expansion Freon job which never was completed because of my draft board. As soon as the Navy nabbed me my mother promptly sold all my equipment at a great loss to me. The Navy laid me away in San Francisco for two years where I skated 300 or 400 hours a year and competed in the California state figure competition.

In 1949, I built the world's most efficient rink (18 B.t.u. per sq. ft. of ice surface) around an early Servel hermetic. In 1951 I became the proud possessor of a lot of plate coils from a shut-down locker plant, and opened a skating rink studio in a barn east of Wichita.

I started working up a pro show in 1956, but most of the kids didn't want to work enough or dropped out for other reasons. The show became a two-some affair with Marlene Bertholf and myself. We had a good show but no portable rink.

I got a junk compressor body for 50 dollars. Fixed it up and bolted it to a board. One hundred fifteen dollars worth of copper tube was wrapped around a baffle and dropped into a can for the evaporator.

We cleaned up some hard copper (18 cents a pound) for the heat exchangers and other parts. This job done, we gave our first show in Peabody, Kansas, on Oct. 8, 1958. Inclosed are publicity clippings for some of our other shows.

We have new and original choregraphy and the ability to do good skating on a small area. Our act should be good for TV and conventions.

Possibly some manufacturer or association in our business would like to sponsor us for a convention, or use us in their advertising.

KENNETH ISELY

Out of Our Mailbag

2452 Francisco St.
San Francisco, Calif.

Editor:

Noted in your "Inside Dope" column (certainly, I read it first—doesn't everyone?) you have been having some of the same troubles which plagued this household recently.

We never heard of a certain firm until bills started arriving for some kind of cards—which never did. When nasty and threatening letters started coming I turned the matter over to the Better Business Bureau. Judging from all the verbage on the BBB form there must be a lot of similar crooks and angles worked every day.

Brother-r-r-r! What happened to all those manners, ethics, etc. we learned as kids?

C. W. HULSE

E. I. du Pont de Nemours & Co.
Wilmington, Dela.

Editor:

I'm almost ashamed to write this note for it indicates the unpardonably long delays which sometimes occur in routing trade publications, although in the case of the NEWS I suspect that the delay more likely is due to the more thorough reading each person on our list gives to it.

In any event I just want to tell you how much I enjoyed and appreciated, as an SDXer of long standing, your fine editorial about Sigma Delta Chi. It's my guess, from the tenor and insight into the goals of the fraternity, that you, too, are a member.

F. R. ZUMBRO

Blissfield Mfg. Co.
Blissfield, Mich.

Editor:

I read with interest the letter in George's "Inside Dope" column by Mr. Neubauer of Copeland. The contents therein are very concise and informative, and I thought it may have some merit in sending this to members of the Michigan legislature, as well as to Washington.

P. C. HALL,
Vice President, Engineering

Dole Refrigerating Co.
Chicago, Ill.

Editor:

Don't believe that this information has any news value and a lot of people won't give a damn but some isolated soul might be interested.

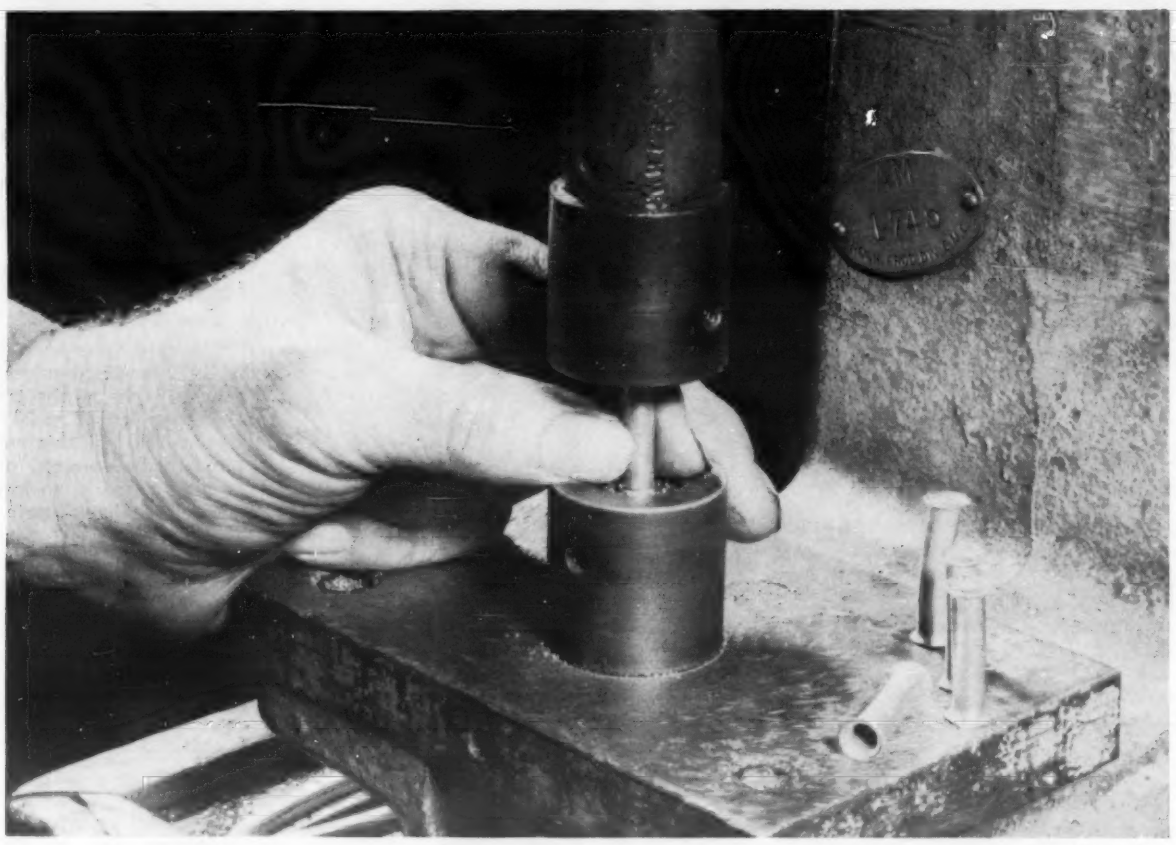
After being employed by Dole Refrigerating Co. for the last 24 years I am retiring. I just passed 70 and will spend my time working around St. Louis where I can be home every night instead of a Weak end Guest.

Through the NEWS I will be in touch with other Knights of the Road, who eat good food and bad, sleep in hotels, motels, and hotel lobbies, sacrifice home life and sell goods to contribute to the success and potential growth of these United States.

J. A. WILKERSON

THE PEOPLE WHO KNOW REFRIGERATION BEST

DEPEND ON THE PEOPLE WHO KNOW TUBING BEST!



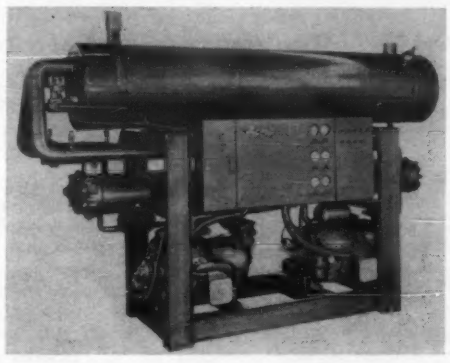
WE TORTURE TUBING TILL WE GET THE ANSWERS

After our engineers have put tubing through such tests as the one illustrated here, they have what they set out to get; all the answers. They put every coil of GM Steel Tubing to this rigorous flare test to determine that it will have mechanical strength far beyond any stresses it will be called on to endure in product assembly or use. This is a break-down test, proving the strength of the weld. It is but one of many, so ask a GM Steel Tubing Sales Engineer soon how Rochester tests for cleanliness, for dimension, for strength. Let him show you the time- and money-saving aspects of using GM Steel Tubing by Rochester. *Rochester Products Division of General Motors, Rochester, New York.*

GM STEEL TUBING BY ROCHESTER PRODUCTS

AMERICA'S LARGEST MANUFACTURER OF REFRIGERATION TUBING

Acme Packaged Chillers Have Twin Hermetic Compressors With Individual Motors for 'Longer Life, Stand-by Protection'



ACME model HHD package chiller is said to provide a means of equalizing wear in two-compressor systems and provide added protection of two motors either of which will keep the system operating.

JACKSON, Mich. — Packaged water chillers which feature twin hermetic compressors with individual motors "for longer life and stand-by protection" of refrigeration and air conditioning equipment have been announced by Acme Industries, Inc.

Featured as model HHD, the new line of 40-250 tons' capacity is said to pioneer a means of equalizing wear in two-compressor systems as well as providing the added protection of two motors, either of which will keep the system in operation in the event one motor fails.

"This is a radical departure from current industry design in which a single double-end motor drives both compressors, pumping whether one or both is operative, and offers no stand-by protection if the one motor fails," R. C. Robertson, vice president and director of sales for Acme, stated.

Dual Refrigerant Circuits, Control Panels Featured

Dual refrigerant circuits and control panels further insure against complete interruption of service for the air conditioning or refrigeration system supplied by the package water chiller, according to the announcement.

An electrical switch on the control panel permits the owner to equalize the wear on the compressors and motors, it was stated. If the second compressor and motor operate only 25% as much as the first, for example, the switch can be used periodically to change the "lead" compressor and balance out the wear, Robertson pointed out.

Other features of the new HHD line include standard "across-the-line" starters mounted within the control box and completely wired prior to shipment. A time delay between compressors eliminates the need of "step" starters and results in a low kw. input, it was stated.

Compactness Emphasized

Robertson said that because of the compact size of the HHD packaged water chiller, two smaller motor-compressor units are housed in less area than required for one large power plant containing their combined horsepower.

Acme's HHD models are extremely compact, the announcement said. Sizes range from 115¾ in. long by 30 in. wide by 70⅜ in. high for the 40-ton model to 160⅞ in. by 41 in. by 104 in. for the 250-ton model.

"Acme's new HHD line employs the company-pioneered direct expansion, thru-tube model "DXF" Dry-Ex two-circuit chiller with seamless copper tubes containing aluminum star inserts insulated with 3 in. of rock cork and covered with a (20-)gauge steel jacket," the manufacturer said.

"The two thru-tube model "STF" condensers have integral finned tubes. They are equipped with two 4-pass heads for use either with city water or cooling tower; a spring loaded relief valve is set at 300 p.s.i.

"Compressors are of the heavy-duty, multiple-cylinder reciprocating hermetic type. They operate at 1,750 r.p.m. Crankshafts are dynamically balanced to reduce vibration and provide quiet operation. Pistons, equipped with compression and oil rings for efficiency and minimum oil flow through the refrigeration system, are interchangeable.

"Long-life Swedish steel is used for the valves, which have hardened valve seats. Large-diameter valve ports are said to insure against excessive pressure drop.

A pressurized oil system assures constant lubrication for connecting rods and main bearings," according to the firm.

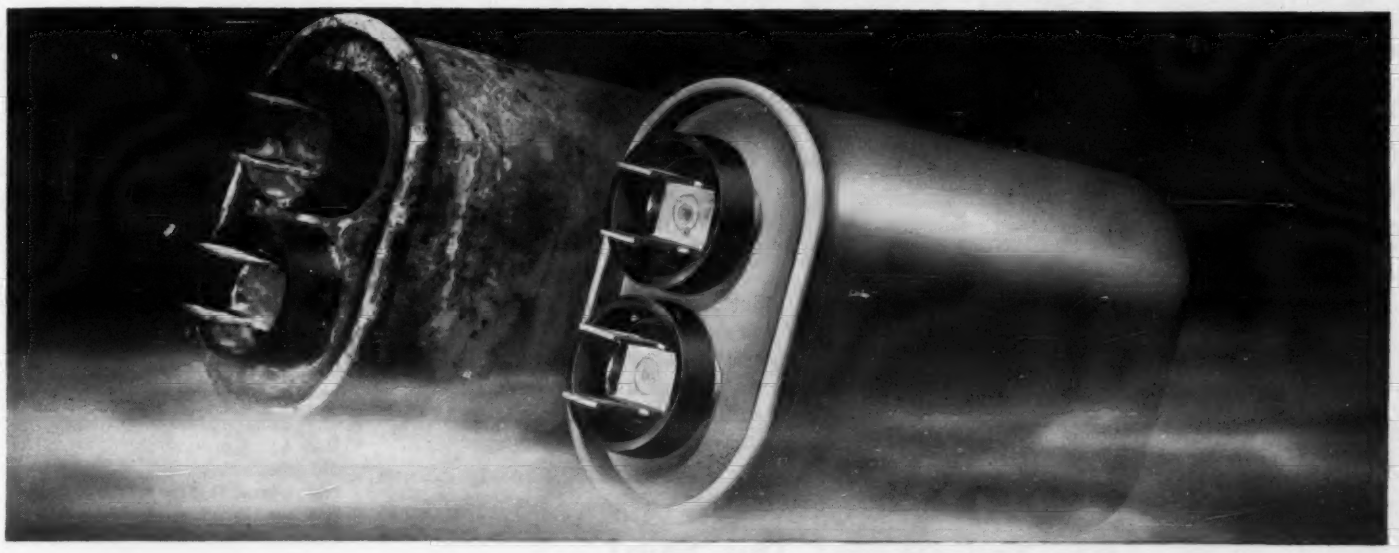
Feldmann Elected To Babcock & Wilcox Board

NEW YORK CITY—Walther H. Feldmann has been elected a member of the board of directors of The Babcock & Wilcox Co., it was announced by M. Nielsen, president.

His election fills a vacancy created by the death of Vice Admiral Edward L. Cochrane, U. S. Navy (Retired).

A prominent industrialist, Feldmann is president and a director of Worthington Corp. He is a member of the boards of the Fidelity Union Trust Co. of Newark, N. J., and Tung-Sol, Inc.

G-E Drawn-case Capacitors Now Offer Greater Protection Against Corrosion



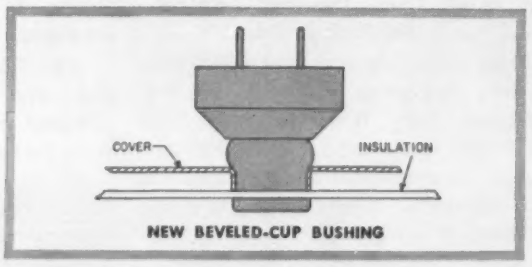
Unique Bushing Design and Automated Application of Granite-gray Paint Assure Uniform, Durable Finish

Accelerated tests in simulated industrial atmospheres proved that this new G-E Granite-gray paint finish inhibited rust and stain formation many times better than finishes used earlier.

Where other finishes were heavily corroded in as little as 250 hours in a 20% salt fog at 95F and 85-90% relative humidity, the Granite-gray paint showed only minor effects, even after 1000 hours.

Chosen only after comparative evaluation of 46 different finish systems under adverse climatic conditions, this remarkable new finish results in longer, trouble-free capacitor life.

To assure you of the maximum protection that Granite-gray paint offers, it must be applied in a uniform film completely covering the capacitor case. General Electric assures complete uniform coverage by use of a unique beveled phenolic-cup bushing and fully automated application of the paint. The new beveled cup facilitates complete paint protection of cover as well as case (above). While maintaining increased electrical creepage distance, the new cup shape also eliminates the collection of troublesome moisture around the terminals.



NEW BEVELED-CUP BUSHING

Granite-gray paint meets Underwriters' Laboratory requirements for all outdoor condensing and central air-conditioning applications.

For maximum protection against salt fog, industrial fumes, slinger condensate and other corrosive elements, specify G-E Capacitors with Granite-gray paint. Further information is available from your nearest G-E Sales Office, or write General Electric Company, Ft. Edward, N. Y.

445-6

GENERAL ELECTRIC

They'll Do It Every Time

by Jimmy Hatlo

IT SEEMS THE STENO POOL IS ALWAYS MARKING TIME AND YAKKING IT UP···
VOILE WITH A POIRET TWILL SKIRT···
YOU'D NEVER KNOW HER WITH THE HENNA HAIR···
SO I JUST LOOKED AT HER AND I SAID-- "WHAT--NO CAVIAR?"
UNTIL YOU ASK THEM TO GET OUT A RUSH JOB···
BUT THESE INVOICES GET FIRST PRIORITY--WE CAN'T STOP FOR ANYTHING···
DID YOU ASK MYNAH, THE PHONE OPERATOR? SHE TYPES, YOU KNOW···
UH···IT'S JUST A SHORT LETTER TO ANSWER THIS OUT-OF-TOWN ORDER····
TAT-A TATTA
1027
AND OUR HAT IS OFF TO WALTER BENDER AS EMPIRE STATE BUILDING, N.Y.
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Importance of Attitudes Toward Service

FRANK VERSAGI, brilliant young Technical Editor of AIR CONDITIONING, HEATING & REFRIGERATION NEWS, recently wowed the Detroit Chapter of ASHRAE with a speech entitled: "Attitudes." Without further ado, let's quote him:

"I have discussed training and education for service, sales, and engineering personnel in the heating-cooling industry. I have shown that the greatest need for improvement is at the installation and service level, rather than at the engineering level.

"I have stressed the importance of proper attitudes toward our goals and needs; to wit:

"The attitude of manufacturers towards colleges and schools and factory training programs;

"The attitude of contractors toward on-the-job training and trade schools;

"The attitude of unions toward apprenticeship programs;

"The attitude of all employers on the need for continual exposure of employes to training, to texts, periodicals, and classes.

"I have pointed out that those of us with superior talent, employer or not, owe it to ourselves and to the industry to lead the way for the sub-professionals in our industry.

"Most important, pervading all that I have said, there is a need at all levels of the industry to create among our present service personnel an attitude which takes into account more than the skills needed for performing basic functions. Any upgrading of the industry must come from the creation of an attitude among us that we are, each of us, more than an operational tool.

"The manipulative and academic skills which we use will remain essentially unaltered; they are fixed by the jobs to be done. But our attitude can change to a more professional one. Those of us at the professional level who have talents must do our part to improve the admittedly disinterested attitude which exists at the service and sales level."

To which all can add a hearty "Amen!"

Are You Aboard This Ship?

PREGNANT U. S. Commerce Department figures reveal that American investments abroad climbed from $32.8 billion in 1950 to $59.2 billion in 1958. And much of this investment came from the refrigeration, heating, and air conditioning industry.

Chiefly this foreign investment spurt has gone into the European Common Market nations (France, Italy, West Germany, Belgium, the Netherlands, and Luxembourg). No longer do these six nations serve small population segments. Rather, they are on their way toward becoming a Third World Power.

The ECM has a population 90% as large as our own, compressed into an area less than 12.5% of our geography. In the last nine years its combined gross national product (total worth of goods and services produced) has doubled, and probably will zoom upward even more rapidly when integration is completed.

Key dynamic force in Europe is quickly expanding consumer wants, plus a productive base which can serve a growing *mass market* (such as we have in our 50 states).

Low labor costs combine with high output to offer substantial advantages to those American firms which are moving into Common Market countries. Here are three ways an American corporation can do business therein, and elsewhere abroad:

(1) *The equity approach* — building factories abroad or buying into existing plants. It bypasses tariff walls and brings maximum control and profit reward.

(2) *Licensing:* You lose some control and some earnings (about one fifth of the dividend rate is lost on the average). However, licensing is THE method if you don't want to risk capital resources. Also, it allows you to test the market for possible later investment into the licensee firm.

(3) *Exporting:* This is the minimum risk approach, but also it means limited opportunities. You face customs barriers, and the chance that Europeans might produce an equivalent product some day.

Further points to remember: (a) Get acquainted with your foreign counterparts. Obtain a good picture of their operations, and give them a good look at yours. (b) Recruit the men with whom you can work out arrangements, and who then can work your operation.

Most important, GRASP THE IDEA wholeheartedly that your best chance of expansion is that of moving into booming Europe, Canada, Australia, Japan, *et al.* Your future may be abroad.

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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WOULD LIKE TO SEE MORE EMPHASIS ON GAS-ENGINE DRIVEN HEAT PUMP

H. Banks Edwards Co.
2211 Quenby Rd.
Houston 5, Texas

Editor:

I wish to compliment you on the fine job you did with the Heat Pump Issue.

In reading the comments from the Air Force, I recognize the old problem of having to accept the lowest bid and as a result getting inadequate installation control. The finest equipment produced is no better than its installation, and more training is needed to assure top quality work on split systems—with special emphasis on the moisture problem.

I note that all of your discussion deals with the electrically driven heat pump. Since the heat pump is just reverse cycle refrigeration, it is an application of refrigeration, not of electricity, and I feel more attention should be given to the gas engine-driven heat pump. With this type of installation, you can use waste heat from the engine to increase the COP of the unit and to eliminate entirely any need for defrosting. Refrigerated Process Equipment Co., here in Houston (PO Box 25,126) is now producing such units in sizes from 3 through 25 tons.

Another comment I'd like to make has to do with the increased time a consulting engineer must spend in designing a heat pump system. One of our local people undertook the task of designing a 30-ton built-up system and found that it took six times the hours that a conventional system requires. It's hard enough to get a sufficient fee for conventional work. The progress of the heat pump will be hindered until this is corrected.

Since the majority of compressors used in the air conditioning business have built-in capacity reduction that tends to unload cylinders as the suction

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temperature falls, they are not very good for the heat pump. In the heat pump cycle, the refrigeration compressor should load up as the suction falls—directly opposite to what is required on cooling. When this is sufficiently recognized by the major compressor manufacturers and corrected, the commercial heat pump market will enlarge greatly. A few manufacturers give up to eight steps of control on their compressors for air conditioning work, but contend that the heat pump needs only one or two steps. This is going back to the mid-thirties, rather than up to the sixties.

Again, may I congratulate you on the excellent job with the Heat Pump Issue.

H. BANKS EDWARDS

THE NEWS GETS AROUND THE WORLD . . .

Amble's
Flushing, L. I., N. Y.

Editor:

I must say that we had an astounding coverage from your publication. We have shipped the Alumalift to Saudi Arabia, Puerto Rico, and Venezuela through ads in your paper. We feel that the first year was an educational period to teach us how to market this item. And the second year it will develop into a fairly lucrative product.

C. H. AMBLE

. . . AND GETS DIGESTED

La Crosse Cooler Co.
La Crosse, Wis.

Editor:

A recent issue of your publication carried the article on our 25th year in the manufacturing business.

It certainly was an exceedingly nice write-up in every way and undoubtedly was something that proved real interesting to many of your readers.

In fact, we have already received lots of nice comments attesting to the fact that the NEWS really gets around and is carefully digested by the recipient.

WILLIAM A. EBNER

ADEQUATE INSULATION IS A MATTER OF CONSCIENCE

Wisconsin Power & Light Co.
Madison 1, Wis.

Editor:

Your editorial about house insulation was wonderful, and the kind of advice that is sorely needed by everyone concerned.

Your masthead carries the motto: "The Conscience of the Industry." Surely this applies to any insulation recommendations made to consumers:

(a) by those selling heating or air conditioning equipment;

(b) by fuel and electricity suppliers interested in selling the energy to operate the equipment;

(c) by insulation suppliers and contractors; and

(d) by architects, engineers, and builders.

The easy course is to recommend that degree of insulation which gives lowest first cost, thus side-stepping the sales obstacle of a slightly higher first cost. But, if we are to give any advice as to insulation, can we *conscientiously recommend* any lowest total cost to the consumer, including both owning and operating costs?

Do our actions warrant the faith we hope our customers will have in our advice?

Your editorial should give a much-needed push to paying more attention to insulation.

GLYDEWELL BURDICK

HITS NAIL ON HEAD

3430 Sunset Blvd.
Los Angeles 26, Calif.

Editor:

I have just finished reading your editorial "Air Conditioning Goes Far Beyond Comfort—It Delivers Good Health," and wish to congratulate you on a very fine editorial. It certainly hits the nail on the head.

ARTHUR J. HESS

PERFORMANCE RECORDS DEFY THEORETICAL OBJECTIONS TO ELECTRIC HEAT

Edwin L. Wiegand Co.
Pittsburgh, Pa.

Editor:

Your latest editorial with regard to pro and con presentation of electric heat in general and central versus room-by-room residential application of electric heat was a real service to heating industry personnel, regardless of the source of heat energy they presently favor.

May I add a few comments for the consideration of your readers?

On a basis of the cost of a B.t.u. in electricity or in fuels, the apparent disadvantage of electricity appears insurrmountable. The application of efficiencies generally accepted by combustion heat designers for fuels and use of 100% efficiency for electric heat usually leaves electric heat at a severe disadvantage.

However, experience records using electricity are much more favorable. Such actual experience records are more generally available nowadays than generally realized.

Regarding the argument of central vs. room-by-room application of electric heat, I agree with your statement, evidently does the majority of the electric heating industry.

Just as the bumble-bee flies merrily along although any good aeronautical engineer can prove his fuselage and power plant make it "engineeringly impossible" for him to fly, electric heat actual performance is proving economic at today's prices.

If we can discuss only theoretical evaluations, electric heat is rarely practical.

Over half a million homes, over 250 schools and innummerable motels, churches, apartment houses, etc., now in operation and with no means of heating but electric are demonstrating that based on actual costs electric heat is here now, and bids fair to grow increasingly rapidly as enthusiastic owners express their satisfaction to their friends and associates.

R. L. BOYS, Product Mgr.
Commercial Comfort
Heating Division

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1951 Level Master Control

Modifications will always be made, but always to improve the product . . . . never to change it!

Basic in design . . .
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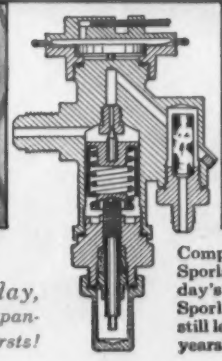
Send for Bulletin 10-10 today, then order Sporlan Thermostatic Expansion Valves with all these famous firsts!



Compare this original Sporlan design with today's phantom above. Sporlan's basic design still leads after all these years!

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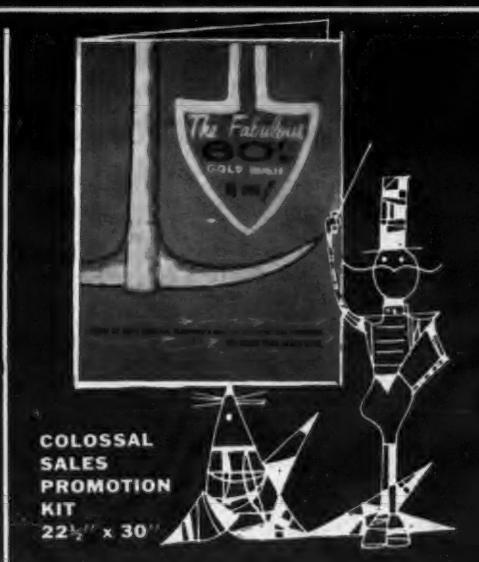

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SALES
PROMOTION
KIT
22½" x 30"

Kit contains the most complete set of selling and promotion aids ever offered—powerful direct mail, colorful displays, brochures, floor-runners, many more. A few are shown here.

PLUS—MODERNIZATION-REPLACEMENT SALES MAGIC THAT WILL HELP YOU DOUBLE—EVEN TRIPLE—YOUR BUSINESS

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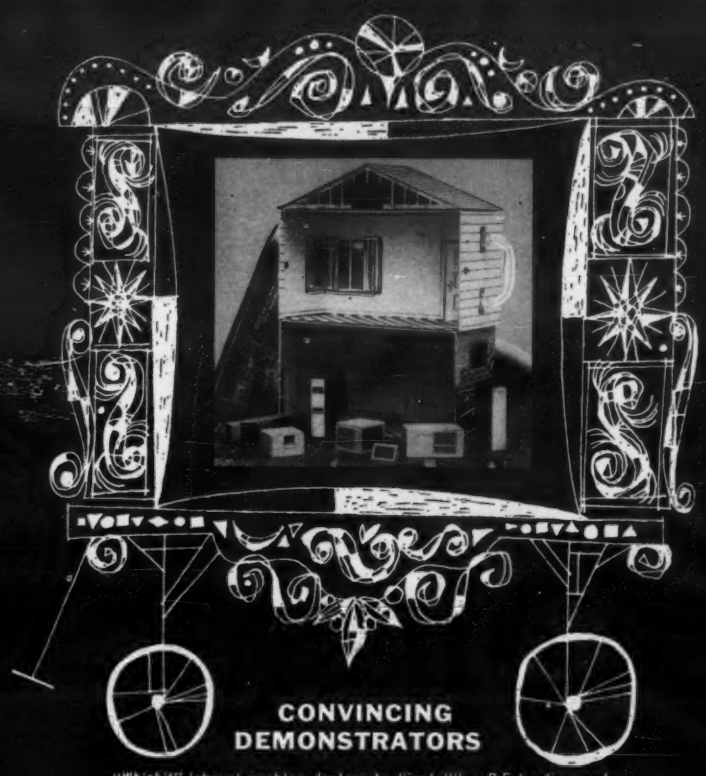
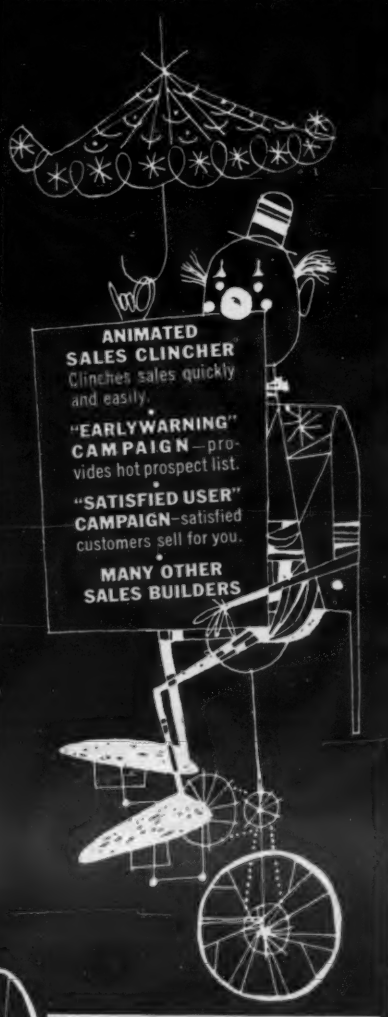


CONVINCING DEMONSTRATORS

"Whipkit" (above) enables dealers to "install" a G-E heating and air conditioning system right before the prospect's eyes.



ANIMATED SALES CLINCHER Clinches sales quickly and easily.

"EARLY WARNING" CAMPAIGN—provides hot prospect list.

"SATISFIED USER" CAMPAIGN—satisfied customers sell for you.

MANY OTHER SALES BUILDERS

DON'T MISS THE GENERAL ELECTRIC EXHIBIT AT THE NAHB SHOW—BOOTH #55

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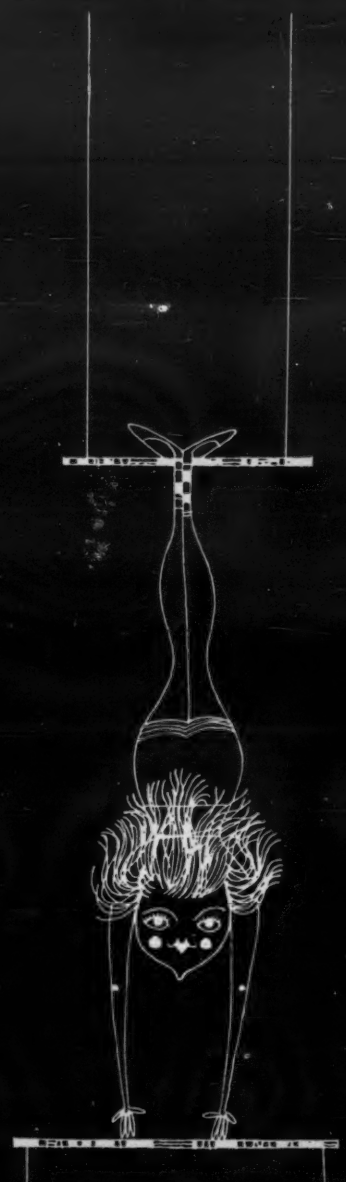
ADVERTISING PRE-SELLING

FOR YOU HARDER THAN EVER



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CONTACT Your nearest General Electric heating and air conditioning distributor for complete details—or mail coupon today.

General Electric Company ACN-1-14
Air Conditioning Dept.
Tyler, Texas
Attn. Mr. J. J. Heffernan

I would like complete details on G.E.'s "LIVE IN AN AIR OF SATISFACTION"—program for 1960. I specialize in . . . ☐ Home Heating and Cooling ☐ Commercial and Industrial Air Conditioning ☐ Both

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Firm _____

Address _____

City _____

County _____ State _____

GENERAL ELECTRIC

AIR CONDITIONING DEPARTMENT
TYLER, TEXAS

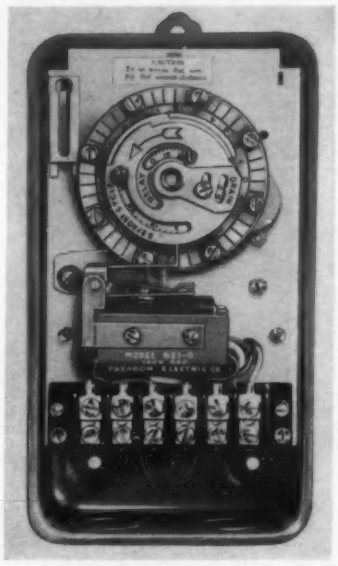
Fram Room Air Cleaner Is Portable

● A portable room air cleaner which uses the principle of recirculating air through chemically-treated germ-killing filters to kill airborne bacteria has been introduced by FRAM Aire Corp., Div. of Fram Corp., Dept. AH&RN, Providence 16, R. I.

The special filters also trap pollen, dust, lint, and other air contaminants which cause hay fever and allergies, the company said. Heart of the cleaner is the new Fram "Permachem-treated" air filter.

The unit is a full-sized circulating fan designed for use in homes and offices. It has been tested in hospitals. Independent tests have shown that the filters trap up to 90% of airborne germs and kill more than 99% of those trapped, according to the company.

The cleaner will recirculate all of the air in an average 11 by 15-ft. room once every five minutes, it was stated. The compact, 25-lb. cleaners are approximately 15 in. square and 9 in. deep. Air handling capacity is 200 c.f.m. The units plug into standard 115 volt lines and draw two amps.



Paragon Bows Time Defrost Control

● A new time defrost control now available from the Paragon Electric Co., Dept. AH&RN, Two Rivers, Wis., is designed especially for defrosting systems that require a fan delay or drain period at the end of the defrost cycle.

Designed for water spray, hot gas delay, and electric heat fan delay defrosting, the 600 Series control permits easy change of the "frequency of defrost" and the length of the "defrost cycle" in accordance with load characteristics, the company said. A service engineer can permanently lock the "delay" and drain settings.

The control has two dials that function as follows:

1. A bottom dial, which revolves once every 24 hours, controls the frequency of defrost according to the time of day. It has eight holes spaced three hours apart.

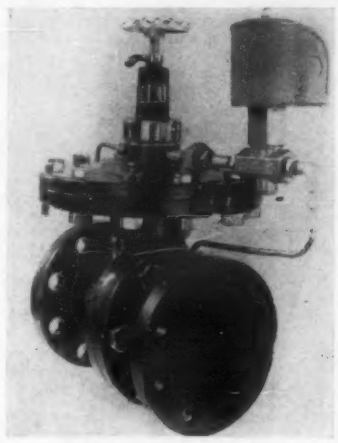
2. A top dial controls the duration of the defrost cycle in three separate adjustable periods: delay, defrost cycle, and drain. The delay period is used in water spray defrosting to reduce the refrigerant pressure and allow the fans to stop before the water spray cycle begins. In some hot gas systems, it is used as a pump-down cycle. If it is not required, it may be set to zero.

Solenoid Actuated Regulators for On-Off Control

● Solenoid actuated regulators for on-off control are now available from OPW-Jordan, Dept. AH&RN, 6013 Wiehe Rd., Cincinnati 13.

They are for use wherever remote shut-off, remote start up, automatic safety shut-off, and combination pressure and temperature control with an electric signal are needed.

When the solenoid opens, it allows steam to enter the pilot chamber and operate the main valve as a normal pressure regulator. But when the solenoid closes, the steam supply to the pilot is shut off and the main valve closes automatically, it was noted.



They are available in ductile iron ½ in.-3 in., bronze ½ in.-2 in., and cast iron 2½ in.-3 in., and are said to be suitable for maximum temperatures of 500° F. and pressures of 250 p.s.i.

Want More Details?

ADDITIONAL details on products that are described on these pages may be obtained by writing the manufacturer at the address given in each What's New story.

Havens

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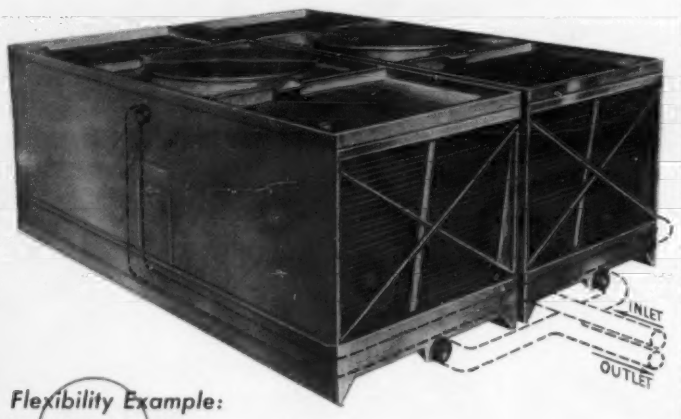
FLEXIBILITY



Flexibility Example:
Two 100 Ton Units Side by Side with Suggested Piping Method.

"VM" SERIES SHIPPED PRE-ASSEMBLED

Achieve Large Tonnage Installation Easily by Adding Additional Towers

Havens offers maximum flexibility with pre-assembled packaged cooling towers that **incorporate internal piping.** Large tonnage installations can be accomplished easily and at a big savings by using additional towers. Havens "VM" Packaged Towers are available in 80 - 100 - 125 and 150 ton sizes. Other capacities and styles also available.

HAVENS TOWERS FEATURE:

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- Easily detachable hoisting yoke eliminates elaborate slings for hoisting
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- All heart California redwood fill
- Low silhouette
- Anti-friction ball bearings equipped with moisture barrier seals
- Open gravity type distribution with drilled orifices and overflow standpipe
- Simple installation

Write for Literature

Havens COOLING TOWERS
Division of
HAVENS STRUCTURAL STEEL COMPANY
1713 Crystal Avenue, Kansas City 26, Missouri

Air-Cooled Condenser Is for Roof Mounting

● What is termed a new type air-cooled condenser has been announced by Dunham-Bush, Inc., Dept. AH&RN, 179 South St., West Hartford, Conn.

Called an "LSBC" (Low Silhouette Blower Condenser), the unit was designed for use in rooftop locations.

"The air movement up and out keeps noise at a minimum," the company said. "The shape allows for location on most roofs with a safe pounds-per-square-foot loading, eliminating costly reinforcing of roof members. This unit can be located anywhere without regard to prevailing wind."

Models are available from 5 to 53.5 tons.

for

NOISE CONTROL

"there's nothing like G-B DUCT"— the proven "prefab" glass fiber duct! See full details on page 24.

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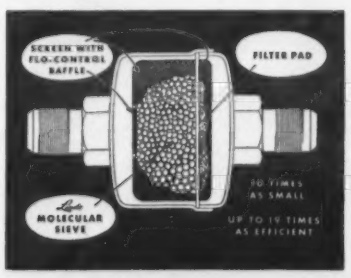

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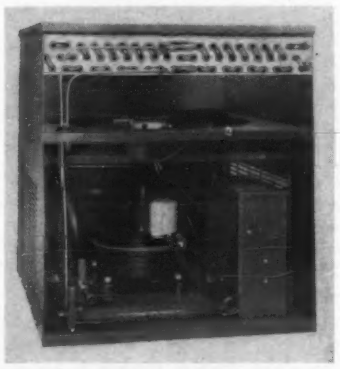


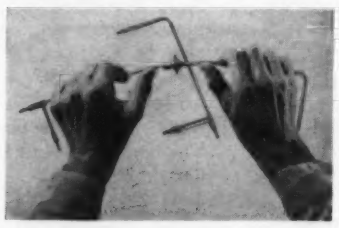
Olsen Bows Air-Cooled Condensing Unit

● Two new "Luxaire" air-cooled condensing units, in 2 and 4-hp. sizes, have been developed for 1960 shipment by the engineering laboratory of The C. A. Olsen Mfg. Co., Dept. AH&RN, Elyria, Ohio.

The units will be available with companion plenum, duct, and counterflow cooling coils for addition to a forced warm air furnace. Condenser air is circulated by a propeller-type fan operating from within and discharged from the top through a horizontally mounted condenser coil. This design permits the unit to be installed under low overhangs and protects neighboring homes and foliage from the possibility of annoyance or damage, it was indicated.

The cabinets are constructed of zinc-coated, 16-gauge steel, topped with baked enamel. The condenser coil is protected by a plastic-coated grille.

The units come with holding charges of Refrigerant-22 and two-way charging valves, so it is unnecessary to evacuate and recharge the unit at the time of installation, the company pointed out. Electrical controls, charging valves, compressor, and fan motor are accessible when the front panel is removed.



Pocket-Size Pitot Tubes Introduced

● In addition to its standard line of pitot tubes, F. W. Dwyer Mfg. Co., Dept. AH&RN (AN-8), P. O. Box 373, Michigan City, Ind., now offers a new series of pocket-size tubes fabricated from hypodermic-needle grade stainless steel.

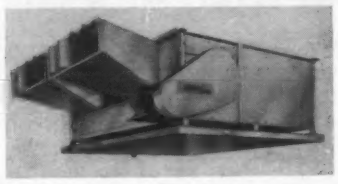
With an o.d. of only ⅛ in., and over-all lengths of 6 in. or 12 in. the new tubes are small enough to fit easily into standard pocket size gauge cases, the company said.

"Having a unity coefficient and with no sacrifice in accuracy, these new tubes, because of their smaller diameter and correspondingly less turbulence, give excellent results in duct diameters of 4 in. or less, and will perform comparably with standard size tubes in any duct where insertion of not more than 12 in. is required," the company claims. "They can be used in pipes as small as ½ in. diameter."

With a variety of mountings, tubes may be used by installers and servicemen as well as for permanently mounted or OEM installations.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Offers New Ceiling Mounted Space Coolers



● A new line of space coolers designed for ceiling mounting is being marketed by Imeco, Inc., Dept. AH&RN, 3033 West Belmont Ave., Chicago 18.

"Provided with a fin coil, in a variety of fin spacings and rows deep, any desired balance of air volume and coil capacity can be achieved," the company said.

"Casings are sturdily constructed and can be furnished hot dip galvanized after fabrication. Fan wheels, housings, eliminators, and discharge cowls can also be furnished hot galvanized after fabrication."

Coils can be arranged for thermal valve, flooded operation with surge drum and float, liquid recirculation, and for either ammonia, halogenated refrigerants, or brine. Air volumes run from 2,500 to 28,000 c.f.m. and tonnages (15°) 5 to 30 tons.

Ansul Adopts New Label

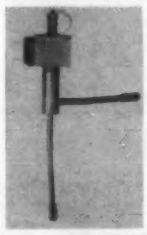
● A new label for its line of "T-Flo" refrigeration driers has been developed by Ansul Chemical Co., Dept. AH&RN, Marinette, Wis.

The label was revised by Robert Vogele & Associates of Chicago after Ansul decided that industry's familiarity with the T-Flo principle made explanations on the label unnecessary.

The new label uses a recently-developed paper stock which retains a lasting glossy finish without the discoloring varnish used on many labels of this type, the company noted. It was redesigned to confirm with Ansul's entire line of refrigeration product labels and packages.

Defrost Valve Provides Corrosion Protection

● Maximum protection against corrosion of internal working components is claimed to be an important feature of the model 285 solenoid - operated hot gas defrost valve for refrigeration applications offered by the Heating & Air Conditioning Controls Div., Controls Co. of America, Dept. AH&RN, Milwaukee 10.



"Designed for such equipment as domestic refrigerators and freezers, the compact valve facilitates rapid, automatic defrosting of a freezer compartment by directing hot exhaust gases from the compressor outlet to the evaporator," it was stated in the announcement.

"Valve opening is normally controlled by a timing device, which determines when the solenoid is energized. Coil temperature dictates valve shut-off, the manufacturer points out.

"The solenoid coil is completely protected against electrical breakdown by vacuum - impregnated epoxy resin. The valve's plunger tube, needle, and seat, each of which is a critical part that must provide trouble-free service through thousands of operational cycles, are made of 18-8 stainless steel to resist corrosion. The plunger is nickel plated."

Automatic Apparatus Stops Frost Build-Up

● New automatic apparatus for preventing frost accumulation on the refrigerated coils of large-scale commercial freezing and cold storage installations, with convenient disposal of the condensed moisture, has been announced by Niagara Blower Co., Dept. AH&RN, 405 Lexington Ave., New York City 17.

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Dallas Shopping Center To Be Air Conditioned, Mall and All

DALLAS—Construction of a $6,250,000 regional shopping center to serve north Dallas will begin June 1, with completion scheduled within eighteen months following the starting date, it was announced recently.

The center, to be called Bazaar Northwest, will be completely air conditioned and constructed on a central mall. The center will encompass one-half million square feet of space under one roof.

Bazaar Northwest will be one of the largest air conditioned mall-type centers in the nation, and will be the second to be built in Dallas, the announcement said.

Space for 35 tenants will be provided. Montgomery Ward has been announced as one major tenant, and negotiations are proceeding with others, including The Fair stores of Fort Worth.

Gerri Von Frellick, developer of Big Town, Dallas' other mall-type center, negotiated the Montgomery Ward lease for Bazaar Northwest. Majors & Majors, Dallas real estate firm, is handling leasing of stores and mall space.

"We expect to have the most beautiful center in the country, and the only one without store fronts," claimed G. C. Ledyard, Jr., vice president of Bazaar Northwest, Inc., developing corporation.

All stores will open on the all-weather air conditioned mall. There will be no exterior exposures for the stores. The mall will include two wide plazas and will be landscaped with fountains, sculpture, and a bird aviary.

Externally, a stone facade across the truck service entrances will be converted into a waterfall, featuring lights and fire. Water will be provided from the center's air conditioning system. The waterfall will also provide aeration for the air conditioning.

The center will be built on a 39-acre tract overlooking Bachman Lake in northwest Dallas. A free parking area will accommodate 3,500 cars. Other features will include complete landscaping and a supervised children's playground.

Other establishments to be included among the 35 tenants will be a club, a restaurant, and a food bazaar which will feature exotic foods from different nations throughout the world.

Henry C. Beck Co. of Dallas is the general contractor. Architects are Welton Becket & Associates of Los Angeles, designers of Dallas' Southland Center and nationally-known designer of mall-type shopping centers and Jack Corgan & Associates of Dallas, designers of Dallas' Love Field terminal.

"The effect of adverse weather, definitely a contributing influence on business volume of shopping centers, has been overcome in Bazaar Northwest by using the covered, air conditioned streets, or malls, between stores," it was pointed out.

"The mall-type, air conditioned regional shopping center is now being studied and adopted in many metropolitan areas as one satisfactory solution to suburban shopping problems."

for ECONOMY "there's nothing like G-B DUCT"— the proven "prefab" glass fiber duct! See full details on page 24.

Cool Malls To Join 45 Stores In Denver Center

DENVER—Enclosed air conditioned malls as wide as city streets will connect all 45 stores in the multi-million dollar Sunset Shopping Center under construction in Amarillo, Texas, according to Gerri Von Frellick, Denver's nationally-known shopping center developer.

Scheduled for opening in September, the Amarillo center is the latest venture of Von Frellick, who built the Lakeside Shopping Center here.

Von Frellick is said to have pioneered the air conditioned mall idea in Denver and expanded on it for the Texas area in the Big Town project at Dallas in which he recently sold his interest.

National Hotel Show To Be Nov. 14-18

NEW YORK CITY—Thomas C. Deveau, general manager of the Park Sheraton hotel here, has been appointed chairman of the 45th edition of the National Hotel Exposition which will be held Nov. 14 through 18 at the New York City Coliseum.

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NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

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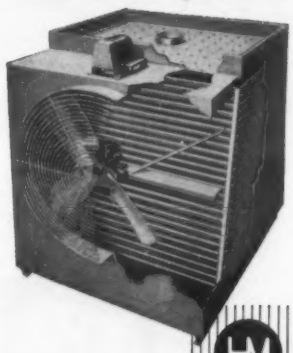
Other H&M features for unusually low maintenance include permanently sealed fan bearings, and a heavy gauge steel cabinet protected against corrosion by three plastic coats applied *after assembly*. Be sure. Ask your local wholesaler for H & M towers, or write to Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.



H & M COOLING TOWER WITH PRESSURE TREATED DECKING

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New NWAHACA 'Short Form' Claimed To Cut Time For Estimating While Keeping Accuracy Close

ST. LOUIS—Claimed to cut pre-bid estimating time as much as 50% or more while holding accuracy of load estimates within 6%, a new short form for residential use has been developed by the National Warm Air Heating & Air Conditioning Association.

It was introduced and explained by Gary Baker, assistant director of technical services, at the association's recent 46th annual convention here.

Need for a quick but accurate method of estimating jobs was recognized by Baker, who pointed out that no contractor can expect to get every job he bids on and thus cannot afford to spend too much time in figuring each one. If he bids too high, however, he'll lose the job; if he bids too low, he'll probably get the job but lose money on it.

Forms Available From NWAHACA

Designated at Worksheet Form H1 and available from NWAHACA in pads, the form is printed on both sides of a 17 by 11-in. sheet which folds into a four-page 8½ by 11-in. folder.

Center spread comprises the worksheet for calculating heat loss and gain for residential heating and cooling, respectively. First page gives instructions for using the form and provides spaces for summarizing recommendations, etc. Back page permits itemizing of material and labor costs.

The new short form is not intended as a substitute for the association's Manuals 3 and 11, it was emphasized by Baker. After the contractor has completed the sale on the basis of his short form estimate, he should then figure the heat losses or gains by the manuals, which are "as accurate as any practical method known," he declared.

'Many Short Forms Sacrifice Accuracy'

"There are many short-cut methods in use today," Baker said. "Frankly, we feel that most of these methods are oversimplified at the expense of accuracy, while the others are no easier to use than the basic method outlined in Manual 3 and Manual 11.

"We have reviewed over a dozen such methods. Results obtained from the use of these methods vary from 3% lower to 72% higher than heat losses figured by Manual 3. Results vary from 36% lower to 51% higher than heat gains figured by Manual 11," pointed out Baker.

New Form Comes Within 5% On Heating, 6% on Cooling

Over a wide range of examples the new short form comes within 5% on heating and 6% on cooling, Baker claimed.

The simplifying steps were enumerated as follows:

"1. Length of exposed walls are used. Wall heights have been assumed. It is not necessary to figure gross wall areas.

"2. Window and door factors are reduced by the amount of wall factor so that the heat losses figured through windows and doors are only losses in excess of wall losses. It is not necessary to figure net wall areas.

"3. Window and door factors and basement wall factors, include an allowance for infiltration. It is not necessary to figure crackage.

"4. Floors, which are normally figured as a strip around the perimeter, are figured as running feet. It is not necessary to figure this area of the strip.

"5. Factors are grouped to reduce the quantity of factors and rounded off for easier multiplication where accuracy is not sacrificed.

"6. Totals are figured on a per degree basis so that the same calculations can be applied to different design conditions and the cooling calculations. The advantage of this procedure would become evident where an owner specifies a temperature range other than what would be standard in his location, or for a prefab house which may be built in various locations.

"7. In cooling, the same B.t.u.h. per degree difference is utilized in figuring the transmission and infiltration gains by multiplying it by the proper factor. This avoids duplication of many calculations normally used in both heat loss and heat gain estimates.

"8. Sun gain through glass is figured by multiplying the area by a factor. It is not necessary to figure shade lines because the tables show values for several widths of overhang, several heights of windows, several latitudes and orientations. Only the orientation having the largest sun load is used.

"9. An allowance of 30% is included in all cooling load factors. It is not necessary to calculate the latent heat separately.

Heating, Cooling Figured On One Worksheet

"10. Both heating and cooling calculations are made on one worksheet. It is not necessary to search through several pages to find related information or transfer figures.

"11. Space is provided on the worksheet for making an estimate for bidding.

"12. The form supplies one complete record for construction, design conditions, heat loss, heat gain, cost estimate, and quotations."

In Baker's opinion, the new short form should permit doing heating estimates in 50% of the time required with Manual 3, and an estimate on a year-round system should require less than 30% of the time now required using both Manuals 3 and 11.

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Firm.....
Address.....
City.....Zone....State.....

TECH CENTER

by Frank J. Versagi, Technical Editor

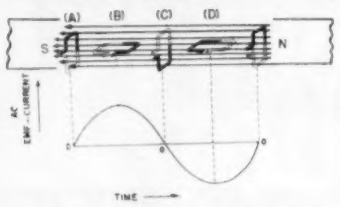
Applied Electrical Theory (8)

AC and DC Generators

Although batteries and thermocouples are called chemical and thermal generators of electricity, respectively, the term generator, used alone, always refers to mechanical-magnetic machines, such as hydroelectric or steam turbines, used to generate almost all the electrical power consumed for domestic and industrial purposes.

Essential to this last type of power generation is **induced electromotive force** and the resulting **induced current,** the voltage and current caused by the relative motion of a magnet and an electrical conductor.

Assume the single coil, or loop, of wire shown in Fig. 1 is rotating clockwise through the magnetic field between two permanent magnets. The pulley denotes the external mechanical force which causes the rotation; it can be steam, water falls, or internal combustion.



Following the black half of the loop:

1. When the loop is vertical and black is uppermost (A), it cuts across no magnetic lines of force. (Theoretically, the conductor at least at one point travels exactly parallel to the lines of force, cutting none.) Therefore, induced voltage and current are zero, or practically zero.

2. As it begins its rotation, the black half of the loop cuts through more and more lines of force. The induced emf increases with the increasing number of lines cut until at (B) the maximum number of lines are cut and the induced emf is greatest. (The conductor is now moving essentially perpendicular to the lines of force, therefore it is cutting more lines than anywhere else during the rotation.)

3. The black half continues its rotation, once more cutting fewer lines of force until it reaches (C)—180° opposite its starting point. The generated voltage proportionately decreases until it again reaches zero at (C).

(To this point, the inductive effect has been essentially the same as that caused by thrusting a coil up around a bar magnet, as in article No. 7 in this series. As the coil approaches the magnet, some emf is generated. As the coil moves closer, cutting more and more of the lines of force, the greatest deflection of the galvonometer indicates maximum voltage and current were induced. When the coil's motion is stopped, equivalent to the vertical position of the black loop, no lines are being cut, no emf is induced.

(Recall that when the coil is pulled away from the magnet, the galvonometer deflects in the opposite direction.)

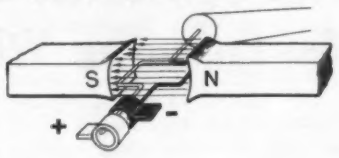
4. As the black half of the loop continues its clockwise rotation, it again begins to cut more and more lines of force, but this time in the opposite direction than during its rotation from A-to-C. Where it was cutting **down** through the lines from A-to-C, it now is cutting **up** through the magnetic field. Therefore, the induced voltage and current, while equal in quantity to those generated A-to-C, will flow in the opposite direction. At (D) this reversed emf and current will have reached their peak.

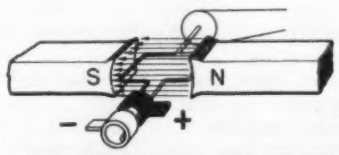
5. As the black half of the loop returns to (A), fewer lines of force are cut and the reversed emf and current again drop to **zero.**

These five steps describe the fundamental operation in the generation of alternating current. The smooth curve which traces the rise and fall of generated emf and current illustrates one complete **cycle.** During the generation of typical household voltage, say, the curve traces the increase from zero to 120 volts in one direction, the drop from 120 to zero, the increase from zero to 120 in the opposite direction, and the drop again to zero. The curve is also referred to as a **sine wave** or an alternating current wave **form**—these terms from the mathematics which define the shapes of curves.

The discussion, so far, has followed the black half of the loop. In the white half, exactly the same things go on—but in reverse at any given moment. When the **black half** is cutting **downward,** the **white half** is cutting **upward.** When the electrons flow **in** the black loop, they are flowing **out** the white loop. Half a cycle later, the roles are reversed.

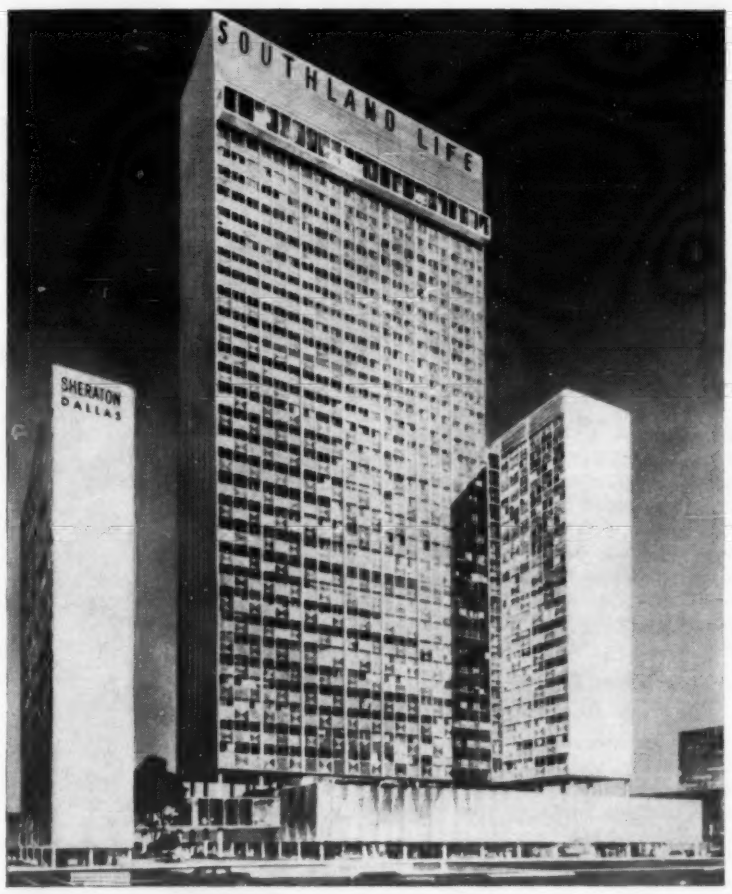
To keep up with the alternation of electron flow and to bring usable power from the generator, **slip rings** are used as shown in Fig. 2.



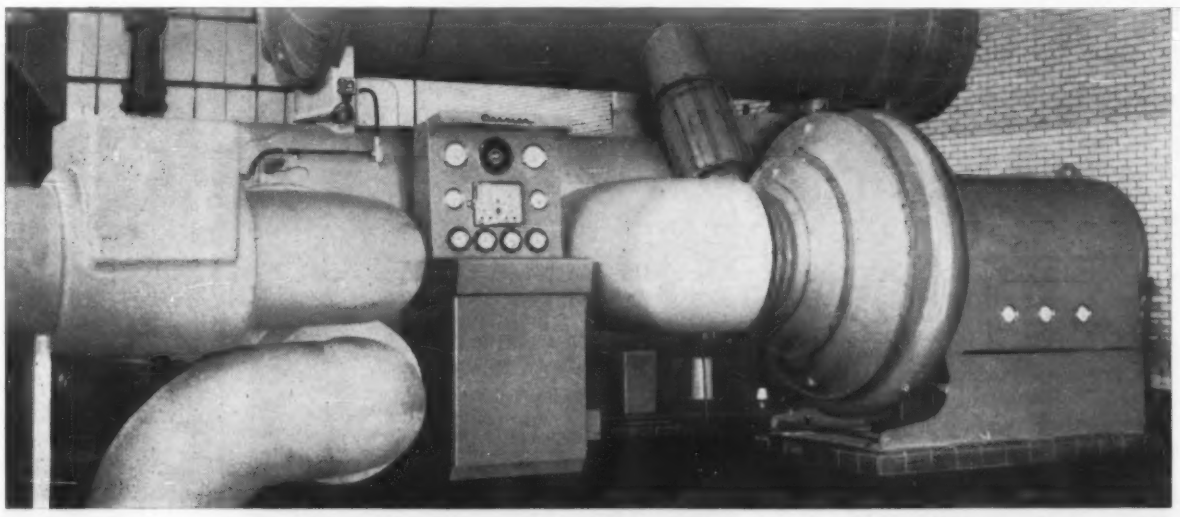


The black ring is negative during one half the cycle; it is positive during the second half. The white ring is positive during the first half, negative during the second half. **Brushes** riding on the slip rings, therefore, are alternately feeding electrons to the external circuit and return-

Southwest's Largest Commercial



Architect's drawing of the block-square Southland Center in downtown Dallas. The 3-building complex includes the 42-story home office of Southland Life Insurance Company, the 600-room Sheraton-Dallas Hotel, a shopping area, a 2000-car garage and a 36-story skyscraper to be built at a future date.



A hermetic centrifugal water chilling machine, typical of those built by Carrier Corporation for Southland Center. Southland's air-conditioning system is the world's fifth largest in total capacity for commercial multi-room structures and the biggest yet using this type of equipment.

ing them from the circuit to the generator, completing the path which must always exist for current to flow.

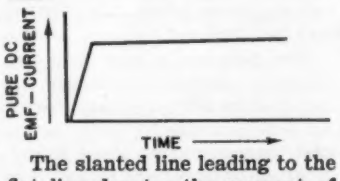
Since the electrons are flowing first in one direction then in another, it is alternating current which comes from this type of arrangement.

Depending on the size of wires in the loop, the number of loops in a coil, and the speed of rotation, voltages from a very few to many thousands can be generated from this mechanical-magnetic induction apparatus. The speed of rotation also bears directly on the number of cycles generated per unit of time. Almost universal in this country is **60-cycle** a.c. To generate 60-cycle current, present designs of generators rotate at 3,600 r.p.m. To produce the 25-cycle current used until recently in most of Canada (remember the blinking lights?), the generator rotates at 1,500 r.p.m. Over the world 50-cycle current is common, and in aircraft 400-cycle equipment is used to get the same work out of lighter and smaller machines than would be possible with 60-cycle apparatus.

Through all this discussion of generators, there is a primary consideration: **A rotating coil in a magnetic field always produces alternating current.**

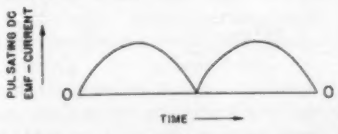
DIRECT CURRENT GENERATION

If the voltage or current curve of a battery were plotted against time as was the a.c. wave form, it would look like this:



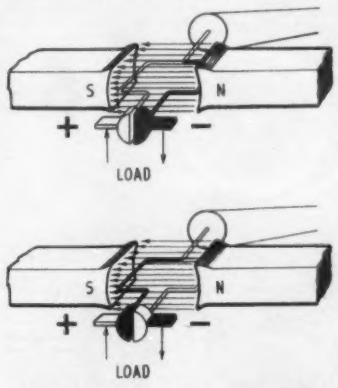
The slanted line leading to the flat line denotes the moment of time required for direct current to build up to full value when the circuit is closed. Since chemical generation always causes electrons to build up on one of the materials involved and thus flow only in one direction at a constant rate (battery is full strength), the d.c. curve is really a straight line very unlike the a.c. wave form.

Such steady d.c. is frequently termed **pure** d.c. or **true** d.c. to differentiate it from the **pulsating direct current** which is obtained from a mechanical-magnetic generator. The curve for such generated direct current looks like this:



Since a rotating coil in a magnetic field always generates alternating current, whence the direct current?

The transition from a.c. to pulsating d.c. is accomplished by altering the a.c. slip ring arrangement to a **split**-ring setup.

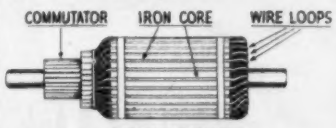


Replacing the black and white whole rings of the a.c. generator is a simple split ring with electrical insulation between the white and black segments. As the loop turns, electron flow in **the loop** takes place exactly as in the case of a.c. Thus, for half the cycle, electrons are flowing out the black half of the loop; for the other half of the cycle, electrons flow out the white half.

The negative brush is always in contact with that segment of the split ring from which the electrons flow outward; the positive brush is always in contact with that section of the ring through which electron flow is always inward. The effect of the insulation between segments is to cut off the induced emf to the conductors just before it reverses direction on each cycle, since for the moment the brushes are in contact with the insulation, no electrons flow inward or outward.

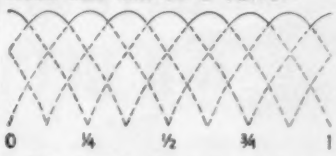
As a result, as the curve shows, the emf and current can build up to two peaks per cycle, but both in the same direction—no curve below the zero line as in the case of alternating current.

The d.c. voltage induced by a single loop of wire fluctuates greatly. To overcome this and to obtain a more even supply of d.c. with less **ripple,** the number of loops in the rotating member, the **armature,** is increased. The ends of each loop are attached to a set of split rings as in the case of a single loop, and each segment is fully insulated from its neighbors. The assembly of ring segments and insulation is called a **commutator.**



ARMATURE

In operation, the brushes are sized to fit the small segments and they ride alternately over segment, insulation, segment, insulation, etc. The resulting emf looks like this on a curve:



The brush picks up the voltage from each successive segment before the voltage can drop very much on the segment just passed under the brush. The smaller the ripple, the more near to pure d.c. is the generated pulsating direct current.

(It must be understood that electrons do not actually flow through circuits in the roller coaster fashion of the a.c. wave form, nor in the rippling fashion of pulsating d.c. All such representations are mere techniques for demonstrating phenomena and are no more to be considered real than a pie chart depicting disbursements, profit, or loss can be considered real money.)

While a few cities still have several blocks (usually downtown) on direct current service, the overwhelming amount of electrical power used in the United States is alternating current, 60 cycle. The chief reason for the predominance of a.c. over d.c. is the greater ease and economy with which a.c. may be transmitted from the relatively remote generating plant and distributed to consumers.

(Most of the figures used in this article were adapted from Frigidaire's Home Study Course on Practical Electricity.)

Next:
POWER DISTRIBUTION

Air-Conditioning System is Charged with genetron® SUPER-DRY REFRIGERANT

Over 28,000 Pounds of "Genetron" 11 Used For Vast Air-Conditioning Project

Four stories underground—beneath the fabulous new $35 million Southland Center in Dallas, Texas—six 1000-ton centrifugal water chilling machines, built by Carrier Corporation, form the "heart" of the largest air-conditioning system of any commercial building in the entire Southwest. This giant cooling plant supplies enough cold water to cool and dehumidify air in all offices, rooms, shops, even lobbies and public passageways.

The refrigerant used in these special Carrier-built cooling machines is General Chemical's "Genetron" 11—shipped by special tank truck from our Baton Rouge Works in Louisiana. Actual unloading of the refrigerant was accomplished by pipeline from the sidewalk directly to the six units located four floors below in the engine room of the Southland structures. It is believed to be the first time this method of charging refrigeration equipment was ever attempted, and its successful outcome was the result of teamwork between General Chemical's sales and technical service staffs and representatives of Carrier.

Service like this is typical of the close cooperation and support General Chemical is geared to give its customers... and the kind of service always available to *you* whenever you need it.

Service is *one* of the reasons why so many users prefer "Genetron" fluorinated refrigerants. Another is their uniformly high quality. Their moisture content is extremely low and their strict specifications are consistently *bettered* in production. Good reasons for *you* to insist on "Genetron"!

genetron 11 ORANGE LABEL CCl_3F TRICHLOROMONOFLUOROMETHANE
genetron 12 WHITE LABEL CCl_2F_2 DICHLORODIFLUOROMETHANE
genetron 22 GREEN LABEL $CHClF_2$ MONOCHLORODIFLUOROMETHANE
genetron 113 PURPLE LABEL $C_2Cl_3F_3$ TRICHLOROTRIFLUOROETHANE
genetron 114a BLUE LABEL $C_2Cl_2F_4$ DICHLOROTETRAFLUOROETHANE

Allied Chemical
GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N.Y.

This special tank truck was used to ship "Genetron" 11 to the Southland project from General Chemical's Baton Rouge Works in Louisiana. 28,000 pounds of "Genetron" 11 were used to charge six 1000-ton Carrier hermetic centrifugal water chilling machines.

Space Heaters Solve Expansion Problem For Pharmaceutical Manufacturer

WHEN INCREASED business required new manufacturing warehouse and shipping facilities, S. E. Massengill Co., manufacturer of pharmaceutical supplies at Bristol, Tenn., found itself with a heating plant already operating at capacity. Heating problem in warehouse and shipping building was solved with electric space heaters. One hundred General Electric units were installed and provide even heat throughout the building. Low maintenance and power rates were economic factors considered in deciding to use electric heat, according to Massengill officials.

Mueller-Climatrol Furnace Line Features Economy, Compactness

MILWAUKEE—A new line of economy furnaces which "require as little as 2½ sq. ft. of floor space" has been announced by Mueller Climatrol.

"Although extremely compact—the largest model requires 4.2 sq. ft. of floor space, all but one model can be adapted to central year-round air conditioning," the announcement stated.

Said H. P. Mueller, Jr., executive vice president: "We've designed this line with the new home construction market in mind. The demand for central air conditioning is growing rapidly. Buyers of new homes are beginning to expect it, or they want to be able to add it at low cost."

The new gas furnace line (type 144/145) is available in four capacities which range from 65,000 to 125,000 B.t.u.h. The "straight line" design comes in a two-tone mountain spring green finish.

Type 144/145 units are 57 in. high, have a width of 14¼, 18, or 24 in. (depending on model), and a depth of 25⅜₁₆ in. Since the "height" is only 57 in., a "cooling package" can be placed directly on top of the unit, without interference to the floor or ceiling joists above the unit, it was pointed out.

The line has a new heat exchanger "designed to insure top combustion efficiency and better air flow qualities for both winter and summer air conditioning. Heat exchangers are mounted to eliminate any uneven strain and thereby prevent sounds of furnace expansion and contraction as the unit heats and cools.

DARLENE LUCHT (Miss Milwaukee, 1959) appears in Scottish costume to emphasize how Scotch this new Mueller Climatrol gas heating unit (145/100) is on floor space. Even with summer air conditioning this unit takes only 3 sq. ft. of floor space.

* * *

"To further reduce any sounds, blowers are of a large size with blower wheels dynamically balanced. Units are available with belt or variable speed direct driven blowers. Models are also available to provide for extra large capacity air conditioning.

Heavy cast iron burners are of a deep slotted design. All controls are factory-wired and the units are shipped complete.

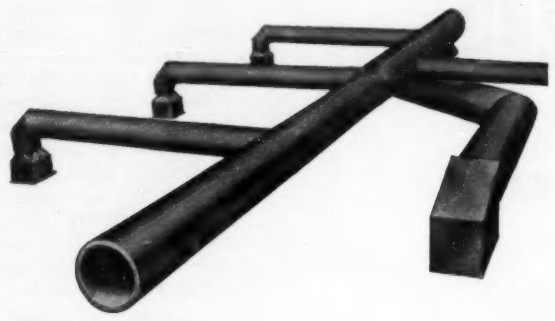
White-Rodgers Names Leland Sayers as Electric Heat Advisor

ST. LOUIS — White-Rodgers Co. has announced the appointment of Leland Sayers as electric heat advisor, a new post established as a service to all interested in electric heating.

Sayers' services as speaker, counselor, or advisor are now available to equipment manufacturers, electric utilities, state educational organizations, contractor associations, and similar groups.

Sayers is well qualified in all phases of electric heat, including equipment, controls, application, insulation, ventilation, etc., it was pointed out. He has had extensive experience in both residential and farm applications.

Sayers was previously with the Southwestern Electric Cooperative of Illinois, where he was responsible for sales promotion and public relations of commercial and residential customer services.



for QUALITY PLUS ECONOMY "there's nothing like G-B DUCT!"

Cost-conscious contractors switch to "prefab" glass fiber duct; comfort-conscious customers are impressed

For maximum performance plus low installed cost, nothing does it like G-B DUCT — the round, prefabricated glass fiber duct for heating and air conditioning. Ideally suited for both residential and commercial use, this unique new duct is fast replacing conventional metal duct on many jobs across the nation. And for good reasons, too, for only G-B DUCT offers *all* the advantages of a lined metal duct plus the important *money saving extras* of a prefabricated duct.

HIGH IN QUALITY & PERFORMANCE

Because G-B DUCT is made 100% of glass fiber insulation, maximum thermal protection and sound absorption are "built-in" features. Every foot of this unique new duct is a self-contained sound trap. G-B DUCT carries an Underwriters' Laboratories label, and therefore meets all FHA requirements. As permanent as glass itself, this new duct will never rust, corrode, or deteriorate.

ECONOMICAL, FOOLPROOF INSTALLATION

Although somewhat higher in initial cost, G-B DUCT can be applied so simply and quickly that completed costs soon come in line with — *and usually undercut*—those for conventional metal ducts. The key lies in no preassembly work. There's no scoring, no folding. G-B DUCT comes in 6′ ready-to-use sections, in standard sizes up to 18″ in diameter. Sections fit snugly and swiftly together with standard metal sleeves and vapor barrier tape. Elbows and T fittings are also easily fabricated with a knife and factory-supplied templates.

ATTRACTIVE VAPOR BARRIER FINISH

G-B DUCT's uniformly thick walls are covered with an air-tight plastic vapor barrier sleeve, providing a smooth, attractive finish as well as positive protection against sweating and moisture build-up. With vapor barrier tape sealing all seams, a completed G-B DUCT system is neat and clean in appearance.

WINS ENTHUSIASTIC APPROVAL

Every day more and more air conditioning and heating contractors are discovering the "quality plus economy" features of G-B DUCT. "Cut our installation time almost in half", reports the A/C Contractor of a 500-unit Florida housing project. "Pleased to report G-B DUCT is performing satisfactorily", says the contractor on an 800-unit housing project. "Comparative cost studies show G-B DUCT doubles our manpower output", adds another on a 300-home development.

Discover for yourself the many advantages of G-B DUCT. Write today for complete information, including simple installation instructions.

GUSTIN-BACON Mfg. Co. gb

218 W. 10th St., Kansas City, Mo.

See the G-B booth #600 at the Dallas Show.

Versatility of G-B Duct is illustrated by its recent use in an 800-unit new housing project (above) and in the remodeling of a 50-year-old home (below). It is also being used in commercial and institutional installations, large and small.

AIR CONDITIONING MANUFACTURERS

PLEASE NOTE

Have *your* COMPRESSOR, COOLING CYCLE or HEAT PUMP rebuilt where quality of workmanship and faithful adherence to your specifications are backed by *certified know-how* and adequate test equipment. Warehousing available. Have your Area Service Engineer contact us for particulars.

CARSCO

9751 Klingerman Street
South El Monte (Los Angeles)
California

Trane Product Program--

(Concluded from page 1)

pneumatic or electric controls. Control panels are factory wired. Compressor-chiller units are available with remote evaporative or air-cooled condensers.

Trane is also introducing a hermetic compressor "to meet the more rigorous demands of R-22." The unit has single-housing construction "which minimizes alignment problems," and an exclusive internal protector "which avoids conditions that cause high motor temperature," the company said. It is available from 10 to 100 tons.

New Unit Ventilator More Accurate

A new Trane unit ventilator is now available with air conditioning, as well as heating and ventilating. Refrigeration may be included when the unit is installed or added later. The units can be equipped so future cooling requires only the addition of a source of chilled water. The new units are 11⅝ in. deep "providing extra, useable classroom area." Matching cabinets and shelving also are available.

Trane is also introducing complete new lines of heating and cooling coils.

"The new lines are more compact and are designed to minimize air by-pass in addition to minimizing moisture carry-over on dehumidifying coils," it was stated. "A non-freeze type coil with 1-in. tubes provides optimum temperature distribution. Cast iron headers provide ruggedness and lower water pressure drop. The new cooling coil is drainable and cleanable."

Coil Selection Method

In addition, Trane is introducing a new coil selection method "that is more accurate than present methods. The selection method takes into account the effect of fin efficiency and surface temperature for wetted surface conditions, and provision for mass heat transfer factor under wetted surface conditions, plus heat transfer potential based on wet bulb temperatures."

New Trane central station air conditioners "offer more sizes and more combinations for quicker, less costly solutions to a wider variety of applications.

"Draw through and blow through types including multi-zone models are available in low and medium pressure types in capacities from 1,200 to 47,000 c.f.m. Dimensions have been reduced to offer more compact units.

"Improved damper design eliminates stratification. Opposed blade face dampers provide better control. Multi-zone units provide independent, variable controls for as many as 14 zones."

Industrial Fans

Trane is also introducing a new line of industrial fans in three basic wheel types. These types include an air handling wheel for air fumes and gases which has backward inclined blades; granular material handling wheel which has straight blades; and stringy materials handling wheel which has straight blades with outside rim omitted. The fans are available in all AMCA established standard wheel sizes from 18⅛ to 64⅜ in.

Compact Heat Pump

A compact heat pump in sizes from 3 to 15 tons is also now available from Trane. This new water-to-air heat pump has prewired controls, and easily accessible water piping and connections, it was stated. Fans can be rotated in the field to change air discharge direction.

Another new product is a gas-fired unit heater. Three types of units are available in propeller, blower, and duct styles. A range of 25,000 to 250,000 B.t.u. capacities is available. The new unit has an exclusive louver fin diffuser for pinpoint control of direction and lateral control of heat, according to Trane.

TOP REGIONAL AWARD for selling condensing units during 1959 is presented to George Moncher and Jules Gottlieb of Abco Supply Co., New York City, by Austin Rising, vice president and director of marketing for York Div., Borg-Warner Corp.

ARI Publishes New Standard 550-59 for Centrifugal Liquid-Chilling Packages

WASHINGTON, D. C. — A new ARI standard for centrifugal liquid-chilling packages was published recently by the Air-Conditioning & Refrigeration Institute.

The new standard, numbered 550-59, joins some 40 ARI standards which have been published as industry guides for refrigeration and air conditioning products and components, it is pointed out.

A centrifugal liquid-chilling package is defined in the new publication as a "factory-designed and prefabricated assembly (not necessarily shipped as one package) of one or more centrifugal compressors, condensers, and liquid coolers, with interconnections and accessories."

The standard does not apply to liquid-chilling packages employing reciprocating compressors, but does apply to both open and hermetic centrifugal compressors.

The standard designates what shall constitute "standard equipment" on centrifugal liquid-chilling packages, and provides that, to be in compliance, they shall be "designed, constructed, and equipped with safety devices so as to be in accordance with the latest edition of the American Standard Safety Code for Mechanical Refrigeration (ASA Code B9.1), as well as with applicable provisions of ARI Standards for "Freon" Water-Cooled Condensers, and "Freon" Water and Brine Coolers.

While conformance with the standard is completely voluntary, systems represented as being in accordance with it shall conform to its provisions, ARI points out.

Copies of the standard, which was developed by ARI's Engineering Dept. under direction of the Centrifugal Committee of the Air Conditioning & Refrigeration Systems Section, may be obtained from ARI (1346 Connecticut Ave., N. W., Washington 6, D. C.) at 40 cents each.

C. C. Davis Dies

WILMINGTON, N. C.—C. C. Davis, engaged in the plumbing and heating business here and vice chairman of the state board of plumbing and heating contractors for several years, died recently in a local hospital. He was 70.

Bell & Gossett Names Oosten Vice President Of Engineering

MORTON GROVE, Ill.—Appointment of Louis S. Oosten as vice president in charge of engineering for Bell & Gossett Co. was announced by R. E. Moore, president.

L. S. Oosten

Oosten, who formerly was plant superintendent, succeeds Harold A. Lockhart who passed away recently.

Oosten joined Bell & Gossett in 1934 as a machine operator. He was made a member of the engineering staff in 1935, and from 1942 to 1953 was assistant to the chief engineer.

He was promoted to plant superintendent in 1953.

Metals & Controls Adds 82 Distributors

ATTLEBORO, Mass. — Eighty-two additional authorized distributors have been named by Texas Instruments Inc., Metals & Controls Div., to handle "Klixon" motor-compressor controls for the refrigeration service trade exclusively.

The division's Spencer Products Group manufactures Klixon inherent overheat motor protectors and motor starting relays.

There is now a total of 96 authorized Klixon motor-compressor controls distributors, located from coast-to-coast and in Canada, serving the refrigeration repair trade, it was noted. An additional 59 distributors supply replacements to the motor repair trade.

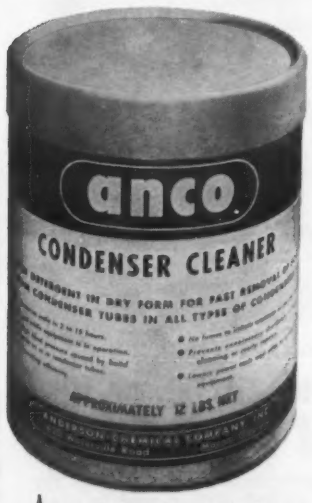
bring head pressure DOWN

keep operating efficiency UP

with anco condenser cleaner

ANCO Condenser Cleaner removes scale and rust from condensers within 2 to 15 hours, depending on scale thickness and composition. Following application, head pressure drops to normal and the condenser's efficiency is restored. Simply dissolve this dry formula in sump while system operates. It works quickly and safely and is equally effective in evaporative condensers and those with separate cooling towers.

Ask your supplier about it.



Specialists in making water behave

Anderson Chemical Company, Inc.
Box 1424 • Macon, Georgia
Memphis, Tenn. • Box 2432 • DeSoto Station

Project Engineer

Midwest manufacturer has opening for an experienced air conditioning engineer capable of the design and development of package air conditioners and package heat pumps through 5 hp. Please rush qualifications and resume to BOX A6432, Air Conditioning, Heating & Refrigeration News.

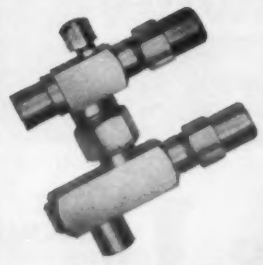
WITT LOW TEMP. *Defrostair* COIL WITH EXCLUSIVE PATENTED
Automatic Electric Defrost System

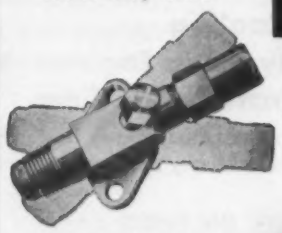
DEFROSTS AUTOMATICALLY
FOR LOW TEMPERATURE ROOMS, FOOD STORAGE, FOOD FREEZING, ICE CREAM STORAGE, INDUSTRIAL LOW TEMP. APPLICATIONS.

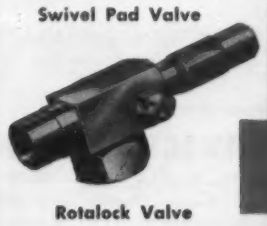
Witt exclusive Defrostair patented Heat Trap coil requires only a low cost single pole, double throw time clock for complete automatic defrosting. Easy low cost installation. Requires no re-evaporation or special plumbing. Completely automatic. Available in 21 models ranging in BTU capacities from 1400 to 44,100 at 10°T.D. Write today for complete Witt Catalog.

Defrostair FOR BELOW FREEZING

A. H. WITT COMPANY, INC.
940 N. Sycamore Ave.,
Los Angeles 38, Calif.


Break-Away Valve


Swivel Pad Valve


Rotalock Valve

PRIMORE
America's Outstanding
REFRIGERATION VALVES

Primore leads the industry with a full line of Steel Shut Off Valves.

Over *15 years* Research, Designing and Manufacturing experience of *top quality* Steel Valves.

FIRST with Break-away Valves;
FIRST with Swivel Pad Valves;
FIRST with Rotalock Valves!

THERE IS NO SUBSTITUTE FOR EXPERIENCE!

Furnace brazed flexible construction reduces cost. Your ENGINEERING, PURCHASING and PRODUCTION benefit!

Primore Sales, Inc.
2460 South Main Street
Adrian, Michigan

Carrier, New York City School Officials Push Effort To Train Men for 7,500 Service Jobs During 1960's

NEW YORK CITY—Top New York City school officials in vocational and curriculum planning joined with Carrier Corp. officials recently to start in motion an effort to provide training for the 7,500 additional service jobs expected in the metropolitan area by 1970.

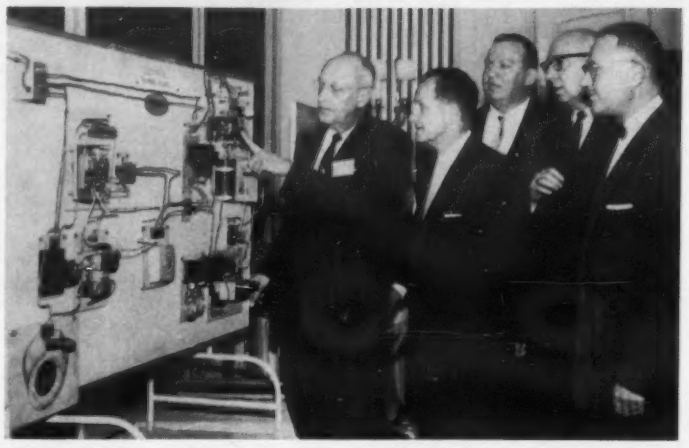
Arthur E. Meling, director of technical services for Carrier's Unitary Equipment Div., and William A. Lake, division sales manager, shared the platform with school officials at the annual industry-in-education meeting of the New York City Council of Administrators and Supervisors of Vocational and Practical Arts Education.

The meeting at the Hotel Savoy Hilton, in which Carrier demonstrated the training techniques and aids available, was the latest in a series of annual industry presentations.

Meling pointed out that the number of air conditioning installation and service jobs has trebled in the past 15 years, and would probably double the present total of 7,500 in the city by 1970.

He described the training needs as courses in fundamentals of electricity, air distribution and heat transfer, and such mechanical skills courses as electrical components handling, plumbing, steam fitting, and sheet metal work.

Lake described the industry's growth and the establishments of sales records in residential types of equipment in 1959, and the vast markets still to be served in institutional, commercial, and industrial fields.



MODEL TRAINING BOARD for demonstrating electrical phases of air conditioning training was shown at the annual industry-in-education meeting of the New York City Council of Administrators and Supervisors of Vocational and Practical Arts Education recently. Arthur E. Meling (left), director of technical services of the Unitary Equipment Div. of Carrier Corp., which put on the demonstration for this year's meeting on air conditioning, demonstrated the panel after explaining the city's need for 7,500 additional air conditioning servicemen by 1970. Looking on, left to right, are Philip Becker, assistant superintendent of vocational and industrial arts education; Herbert Siegel, chairman of industrial arts at John Jay High School and chairman of the Board of Governors of the Council; Dr. Nelson Murbach, chief of vocational training of the New York State Dept. of Education; and Harry Lewis, coordinator for curriculum development of the Bureau of Curriculum Research.

"The industry in all phases employs close to a quarter of a million people," he said. "One of the great problems in expansion has been and will be to find the people to do the job."

Many of the technical skills which are part of air conditioning training are already on the school programs, and in some cases the problem is to obtain students rather than new courses, Dr. William D. Kraengel, coordinator of evening trade schools, reported.

Dr. Kraengel stated that many of the vacancies would be filled by men who took upgrading educational studies while already employed.

Dr. Abraham Kroll, chairman of the Board of Examiners of the Board of Education, pointed out to the 200 educators present that a shortage of teachers is the gravest problem holding back expansion of curriculm. He urged the industry to work out a system for providing more teacher personnel.

Philip Becker, assistant superintendent in charge of vocational education, noted that the industry has a problem of "glamorizing" its careers to make more students apply for the courses. He pointed out that many of the technical fields of training are now receiving too few applicants for courses available.

Dr. C. Frederick Pertsch, associate superintendent of schools in charge of high school division, urged that an industry committee be named to work out with the school system a plan for a three year program in the vocational high schools.

J. A. Marshall

H. F. Powell

R. C. Crowe

R. B. Davis

Wolverine Opens District Offices On West Coast

DETROIT — Wolverine Tube, Div. of Calumet & Hecla, Inc., has announced the opening of two new district sales offices in Los Angeles and San Francisco.

"Until this time," the announcement said, "Wolverine has been represented by Van D. Clothier, Inc., as West Coast agent for the company.

"Now, due to a broadened marketing program requiring increased manpower and facilities, Wolverine has established its own district offices for concentrated selling of its products. Van D. Clothier will continue to serve in a sales counseling capacity."

This reorganization of Wolverine's sales districts will involve the following changes:

John A. Marshall, who originally worked at Wolverine in various sales and advertising capacities and, for the past several years as vice president of Van D. Clothier, Inc., now rejoins Wolverine as San Francisco district sales manager.

J. J. Boyett, formerly associated with Marshall, will also join Wolverine as sales representative in the district.

H. F. Powell, formerly technical sales representative in the Dallas district, becomes Los Angeles district sales manager. W. C. Glass and C. W. Barker will assist as representatives.

R. C. Crowe, manager of industrial sales at the company's administrative office, now becomes New York district sales manager. R. B. Davis, formerly technical sales representative in the Detroit district, will replace Crowe at Wolverine's administrative office.

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HERMETIC COMPRESSOR OPENER

AUTOMATICALLY OPENS ANY HERMETIC COMPRESSOR REGARDLESS OF THE POSITION OF THE WELD

- SAVES TIME—SAVES LABOR!
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Automatically opens any Hermetic Compressor up to 14" in diameter. $397

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NOVI NO. 1 QUALITY PERFORMANCE PRICE

Superior Cooling
Beautiful Design Advanced Engineering
Greatly Reduced Installation Time

Adapter kits packaged and sold separately for greater flexibility in sales. Five Novi warehouses assure fast delivery and lower inventory investment.

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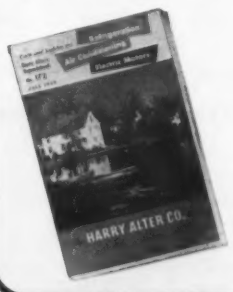
for THERMAL PROTECTION "there's nothing like G-B DUCT"— the proven "prefab" glass fiber duct! See full details on page 24.

SPECIAL DELIVERY BY ROCKET?

No, we aren't using the new ballistic missiles yet, but maybe some day. In the meantime, Harry Alter gives you the fastest possible service. Your orders are handled with *careful* speed. Complete inventories and streamlined methods assure truly snappy service.



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Heating people are in cooling—cooling people are in heating—and the NEWS is their *modern* source of up-to-date information on the whole field. The NEWS is now the "newspaper of the industry" for heating as well as cooling.

Just as you read the NEWS each week for vital, timely news, so do your distributors, contractors, dealers, and prospects.

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- **CHICAGO,** 134 S. LA SALLE ST., FRANKLIN 2-8643-4, REX SMITH.
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- **DETROIT,** 450 W. FORT ST., WOODWARD 2-0924, AL SCHILDHAMMER.

Tube Manifold Names Amoroso Plant Manager

NORTH TONAWANDA, N. Y. —Announcement of the appointment of John D. Amoroso as plant manager has been made by Clark D. Matthews, president of Tube Manifold Corp.

J. D. Amoroso

Amoroso has had 20 years' experience in engineering and plant management. He received his BS degree in mechanical and electrical engineering from Carnegie Institute of Technology.

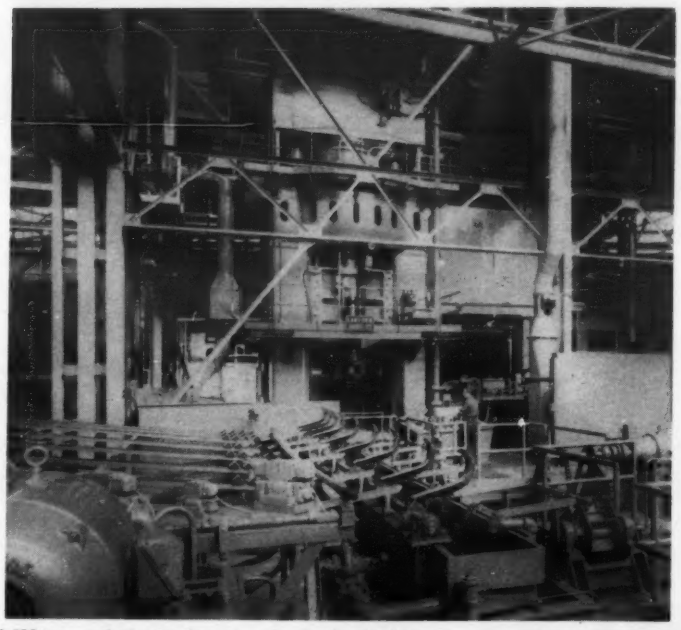
Tube Manifold manufactures liquid receivers and filter-driers for the refrigeration, air conditioning and auto industries.

New Nesbitt Plant Begins Expansion

PHILADELPHIA — John J. Nesbitt, Inc., manufacturer of ventilating, heating, and air conditioning equipment, is planning a new $1.6 million plant to be built on city-owned land near North Philadelphia Airport.

The plant will be in addition to the firm's present facility at State Rd. and Rhawn St., which employs about 1,000 persons.

The new Nesbitt plant is to be the beginning of a ten-year expansion program for the firm. Within this period, it expects to increase its plant facilities by a million square feet. This means a plant costing at least $8 million and providing an annual payroll of at least $11.25 million. The first stage may provide a payroll of $1.3 million.



2,500-ton vertical extrusion press in the Scovill Mfg. Co. main plant is said to be the largest of its type in the world. View shows press and control equipment in background. Equipment in foreground lifts tube shells from pit below press, passes them through cooling tank and delivers to storage.

Revcor Expansion Is Third In 6 Years

CARPENTERSVILLE, Ill. — Revcor, Inc. here, manufacturer of blower wheels, propeller fan blades, and housings, said a plant expansion program will add 28,000 sq. ft. of manufacturing space to its plant.

This is the third time in the past six years that Revcor has increased its manufacturing facilities by one half, it was noted. "This expansion was prompted by the heavy demand for Revcor's new double inlet blower wheels and by its recent acquisition of the Bronson propeller fan blade line."

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Scovill's New Type High-Capacity Hot Extrusion Press Said To Be Largest

WATERBURY, Conn. — A new type high-capacity hot extrusion press, recently installed by Lake Erie Machinery Corp. in the Scovill Mfg. Co. main plant here, is said to be the largest of its kind in the world.

Size and power of the new press alone are reported to permit "an entirely new approach" to brass and copper "tube shell" production.

"Much larger billets can be handled and, hence, both longer and heavier tube shells produced," it was stated. "The press is capable of processing almost twice the tonnage of metal previously handled on this type of equipment.

"Ability to handle unusually large and heavy billets not only allows production of longer length tube in larger diameter finished sizes, but also opens the way to handling more of Scovill's continuous-cast brass alloys. This is considered important because continuous-casting produces alloys of exceptional uniformity in chemical composition ideally suited to production of uniform quality tube.

"Extremely close tolerances demanded by tube specifications must start with even closer control of tolerances in the original hot extruded brass shells. Hence, in this new press the tremendous power of the hydraulic cylinders driven by two 500-hp. motors is electronically controlled within extremely precise limits to assure the dimensional accuracy and uniformity of tube shells extruded from a wide range of brass alloys.

The press towers 40 ft. above the mill floor and the bottom of the press is 45 ft. below floor level—the equivalent of a two-story building with a couple of sub-basements.

Chase Brass Product Development Department Will Assist Customers

WATERBURY, Conn.—A new department aimed at providing a program of continuing assistance to manufacturers in the development of new or improved products and components has been formed by Chase Brass & Copper Co., Inc.

This department, designated Product Development, will supplement the company's extensive Metallurgical and Research and Development Departments in technical assistance to customers, it was pointed out.

According to Albert I. Blank, in charge of the new service, the Product Development Dept. will cooperate with customers in the solution of problems involving functional design and material selection where extensive study of all contributing criteria may be necessary.

Keep Up With Recent Developments at the *2nd Southwest* HEATING & AIR-CONDITIONING EXPOSITION
(under the auspices of ASHRAE)
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WHEREVER your interest lies . . . industrial . . . commercial . . . institutional . . . domestic . . . you'll find this informative exposition packed with new products, new facts, and new ideas that can be put to work for you.
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NEW "R" SERIES Mountings of bonded neoprene-in-shear molded in five degrees of rubber hardness for maximum deflection within each load range: 10 to 4000 lbs. Five colors to identify capacity, simplify stocking, prevent installation errors.
SFNC SPRING-FLEX Mountings combine neoprene with chrome-vanadium steel for applications requiring up to 1.25" static deflection. Neoprene stabilizers for lateral control. Leveling bolts. Non-skid neoprene acoustical pad. Capacities: 50 to 5000 lbs. (Special units for higher loads made to order.)
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for drilling HARD CONCRETE OR ANY MASONRY

THE *Fastest* up to 3 to 1 times FASTER than other core drills

Free cutting design permits faster, easier drilling. Multi-spiral flutes assure positive dust removal from the cutting zone. Cyclo-Core Multi-Tipped Carbide Bits last longer — are easier to resharpen — you can do it yourself! Sizes from ¼" to 6" in diameter. Extra lengths up to 36".

When starting holes, stop "walking" and get accurate hole location with the *EXCLUSIVE* New England Carbide removable "STARTING CENTERS."

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For Rotary Drilling of ORDINARY MASONRY use CYCLO-TWIST
The most efficient, single point drill available. Sizes 7/64" to 1½" diameter.
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Westinghouse 1960 Lines--

(Concluded from Page 1, Col. 5)

most by customers — mobility and quiet operation, Westinghouse officials pointed out.

"The compact size and ease of installation of the units lets the owner move his air conditioner from room to room or even take it on vacation," it was stated.

"A completely assembled installation frame slips easily into the window just like a screen. The conditioner slides into the frame and the installation is complete—in a matter of minutes."

New Air Flow System

All models are equipped with a newly-designed air flow system and special acoustical insulation providing quieter operation, officials said.

Each model in the new line is 24 in. wide and 14 in. high. The Presidential and Custom Mobilaire models are 15 in. deep while the Custom Heavy Duty units are 20 in. deep.

Perma-green Filter Used on All Models

"An exclusive Westinghouse perma-green filter that stops germ growth is used on all models," the announcement said. "This germicidal filter is completely washable and has chlorophyll added to help freshen the air.

"Pushbutton controls mounted in a slant position for easy reading, even if the unit is installed under a window, are standard on all models.

"Four adjustable grilles eliminate drafts and enable the user to direct cool air in any direction to cool 'hot spots.' All models also dehumidify taking gallons of water from the air during operation and automatically disposing it.

"An adjustable thermostat with dual action can be set to turn the cooling system on and off to maintain desired comfort level. It also turns off the cooling system if frost forms on the coils, thus preventing freeze up automatically."

Model Details

Presidential Mobilaire model MPA107C is a 1-hp., 7.5-amp., 115-volt unit with a NEMA Standard B.t.u. rating of 7,000. MPA122C is a 1-hp., 230-volt, 7.2-amp unit with NEMA rating of 10,100.

Custom Mobilaire models are: MCA117C, 1 hp., 115 volts, 7.5 amps, NEMA rating of 7,500; MCA121C, 1 hp., 115 volts, 12 amps, with NEMA B.t.u. rating of 9,000; MCA122C, 1 hp., 230 volts, 7.4 amps, with NEMA B.t.u. rating of 10,300.

The Custom Heavy Duty line consists of: MCA132C, 1 hp., 230 volts, 9.2 amps, with NEMA B.t.u. rating of 11,500; MCA-142C, 1 hp., 230 volts, 11 amps, with NEMA B.t.u. rating of 12,500; MCA172C, 1½ hp., 230 volts, 11 amps, with NEMA B.t.u. rating of 13,500; MCA-232C, 2 hp., 230 volts, 12 amps, with NEMA B.t.u. rating of 15,500.

SEPARATE STORAGE SECTIONS for meat and vegetables is an exclusive feature of the new Westinghouse center-drawer refrigerator. Providing a 21-lb. capacity low temperature meat keeper, this glide-out drawer will keep fresh meat unfrozen for as long as seven days. Another section of the drawer has a half-bushel capacity crisper for vegetables.

Two Dehumidifiers

"Supreme" and "Deluxe" dehumidifiers will be offered. The Supreme, model ESO6000, has an automatic humidity control and an "extra large air drying coil completely exposed at the rear for maximum efficiency." It has 352 sq. in. of condensing surface.

The unit is equipped with casters for easy moving. The casters are spring loaded to prevent rattling when the unit is operating on uneven floors.

Other stories on new products are on pages 9, 12, 18, 19, and 24.

"Removing as much as 33 pints of water a day, the Supreme is designed to keep dry an enclosed area of up to 16,000 cu. ft.," the company said.

It is 22½ in. high, 12½ in. wide, and 19 in. deep including the 10-qt. polyethylene water receptacle that hangs on the rear. The Supreme is an Arctic blue cabinet with a mist white grille, gold humidistat dial, and matching gold trim.

The Deluxe, model EDO5000, is designed to dry enclosed areas up to 10,000 cu. ft. Its with a burnt orange grille.

This model also is mounted on casters and has a large-size exposed evaporator coil for direct condensing of air moisture. Its announced capacity is 23 pints a day. It is 19 in. high, 12½ in. wide, and 13 in. deep.

More Refrigerators Available In March

Regarding the new refrigerators, Westinghouse said the center-drawer units, a 16 and a 14-cu. ft. model (RAA16 and RAA14) will be available to dealers in March. The other models in the line are in production now.

"The center drawer, which can be opened without opening the regular refrigerator section, has two compartments," it was pointed out. "One is a 21-lb. meat keeper in which fresh meat can be stored safely seven days without freezing. Temperature in this compartment is 30°.

"The other compartment is a half-bushel vegetable crisper, completely enclosed to build moisture, and maintained at approximately 36°.

"The exclusive new Westinghouse Frost-Free system introduced a year ago is used in both models (as well as model RBA16). Frost never forms in the storage compartments and defrosting is achieved mechanically every 60 openings of the cabinet has a sandalwood finish freezer door. Another model (RLA11) employs a flash-defrosting system using a push-button device.

"Both units employ the cold injection system of drawing air over refrigerated coils and forcing it into the refrigerator sections. This system is also found on five other models.

"Color panels of textured vinyl on steel that can be changed in minutes appear on both center-drawer models and another two-door unit, model RDA13."

Moffitt--

(Concluded from Page 1, Col. 2)

house portable appliance division. He will make his headquarters here. Production of room air conditioners has been transferred here from Springfield, Mass.

Moffitt had been merchandising manager of the department since 1957. He joined Westinghouse in 1954 as room air conditioner regional manager for the Eastern and Mid-Atlantic region. Prior to that he was regional manager for the air conditioning division of Remington Corp. covering New York, New Jersey, and New England from 1951 to 1954.

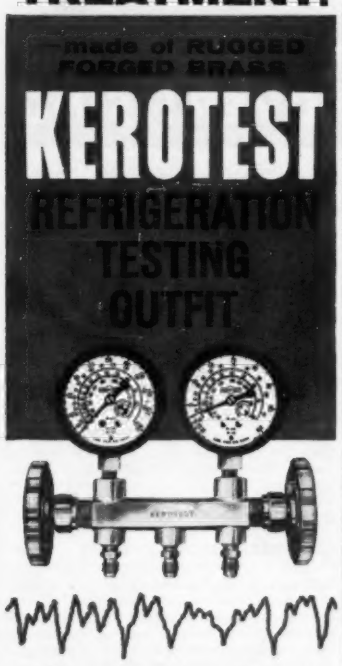
Landmesser--

(Concluded from Page 1, Col. 4)

plans include special emphasis on the firm's room air conditioners, stepped up promotion of year-round residential systems that make use of York's own line of furnaces for all fuels, increased sales efforts on automatic ice makers, and broader distribution through wholesale jobbers of the new "Flex-o-metic" refrigerating units.

Landmesser succeeds R. E. Cassatt who resigned to become vice president of marketing for Regina Corp., Rahway, N. J., manufacturer of floor waxes, floor polishers, vacuum cleaners, and other appliances.

TAKES ROUGH TREATMENT!



- ✓ All connections in accordance with ARI specifications.
- ✓ Furnished with or without gauges.
- ✓ Furnished with or without handwheels.
- ✓ Clearview, accurate gauges.

The Kerotest Refrigeration Testing Outfit is used for a variety of services including:

Purging air or gas from high side of system—charging oil in low side—testing low side controls—charging liquid gas in high side—charging gas into low side—setting expansion valves—purging gas from gauge lines.

Kerotest Refrigeration Testing Outfits withstand severe service day after day. Sturdy forged brass construction in single or double units. Write for full information or send for catalog.

Ask your Kerotest wholesaler for Testing Outfits Nos. 5131 and 6131.

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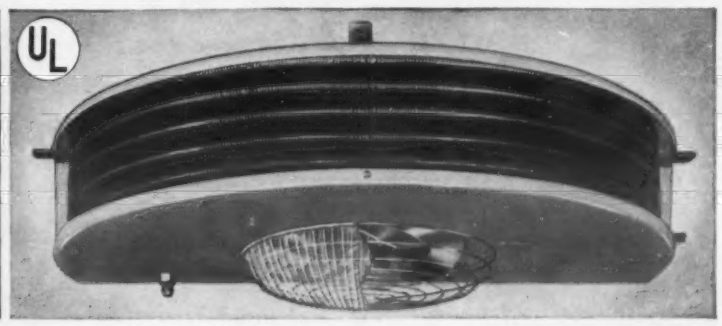
More efficiency
greater capacity with
SEMI-CIRCULAR
UNIT COOLERS



NOW... EXCLUSIVE CIRCUITING SYSTEM

prevents coil "frost-up"

Freeze-up, common to similar units, is completely eliminated. Newly designed air diffusers insure proper air distribution to utilize entire coil surface for more efficiency and economy of operation.

New electrostatic filters and full size heat exchangers are featured on Krack Semi-Circular Unit Coolers—plus other design and construction advantages. Capacities: 360 to 1075 BTU/hr. at 1° T.D.

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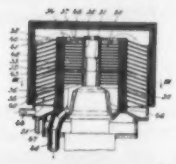
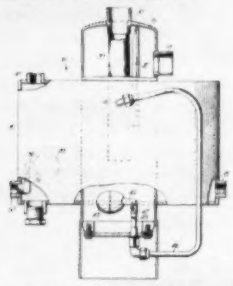
PATENTS *Week of August 25*

2,900,798. HEAT-EXCHANGER IN WHICH A MULTI-COMPONENT MEDIUM IS COOLED. Cornelius Otto Jonkers, Eindhoven, Netherlands, assignor, by mesne assignments, to North American Philips Co., Inc., New York, N. Y.



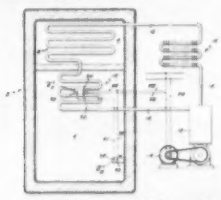
1. A heat exchanger having a gas passing therethrough containing a plurality of components to be cooled and having at least one of said components precipitated out comprising a conductor enclosure containing a conductor and having a hot end and a cold end, said medium flowing from the hot end to the cold end thereof, a plurality of fins with which the medium is in thermal contact, means mounting said fins in said conductor enclosure in superposed relationship and substantially laterally to said conductor enclosure. . . .

2,900,801. METHOD AND APPARATUS FOR OIL SEPARATION IN REFRIGERATION SYSTEM. Eugene H. Honegger, Silver Spring, Md.



1. A method of separating refrigerant and liquid where the refrigerant is miscible in the liquid comprising passing compressed hot substantially gaseous refrigerant through a separating zone, separating the liquid from said refrigerant in said separating zone, moving said separated liquid from said separating zone into an accumulating zone, maintaining said separated liquid in said accumulating zone in indirect heat exchange relation with home gaseous refrigerant continuously passing through said separating zone, and removing gaseous refrigerant from said accumulating zone separated from said liquid therein by the heat transferred thereto from said separating zone.

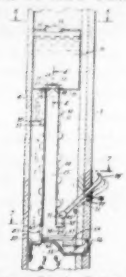
2,900,802. CONTROL FOR REFRIGERATOR. James A. Bagnall, Dearborn, Mich., assignor to Texas Instruments, Inc., Attleboro, Mass.



1. A control for a refrigerator having at least one evaporator together with refrigerant circulating means therefore, comprising first means thermally responsive to the temperature of said evaporator and adapted to be mounted so as to be in close temperature relationship therewith for controlling the operation of said refrigerant circulating means; second means for raising the temperature of said first means above the temperature of said evaporator; and third means thermally responsive to the temperature of the air in said refrigerator for controlling the operation of said second means.

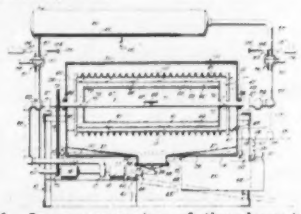
2,900,803. ICE CUBE MAKER AND DISPENSER. John F. Horton, Jr., West Islip, N. Y.

1. An ice cube producing and dispensing device comprising a housing, an overhead water reservoir, a plurality of freezing tubes of substantially rectangular cross-section arranged in series in side to side contact, opening



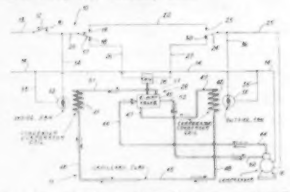
into and dependent from said reservoir, a multiple float valve mounted in said reservoir hermetically sealing said tube openings when said reservoir is empty, refrigerant coils having a flat contact side helically wound around the collective exterior surface of said series of tubes, connected to a refrigerant source thermostatically regulated. . . .

2,900,804. APPARATUS FOR MAKING ICE CUBES. Henry C. Rising, Glendale, Calif.



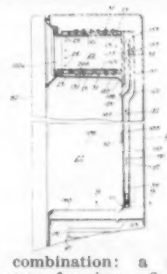
1. In an apparatus of the character described for making small blocks of ice, the combination of: a tank containing a body of fresh water; a cylindrical drum having a plurality of peripheral conductive elements for forming small bodies of ice; a substantially horizontal rotary shaft united with and supporting said drum for rotation with at least a portion of the periphery of the drum immersed in the water in said tank, said shaft having an inflow passage and an outflow passage for circulation of fluid through the drum. . . .

2,900,805. ELECTRIC CONTROL CIRCUITS FOR HEAT PUMPS. Ralph B. Tilney, Clayton, Mo., assignor to Alco Valve Co., St. Louis, Mo.



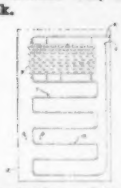
7. An electric circuit for controlling a reversible heat pump system having a solenoid operated reversing valve, a pair of reversible heat exchanging fluid coils, a fluid restricting means and a compressor, said circuit including automatic switching means for energizing and de-energizing the solenoid and thereby reversing the flow in said heat pump system. . . .

2,900,806. SELF-DEFROSTING TWO-TEMPERATURE REFRIGERATOR. Clifford H. Wurtz and Leonard J. Mann, Dayton, Ohio, assignors to General Motors Corp., Detroit.



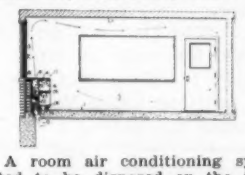
1. In combination: a refrigerator having means forming a first compartment to be maintained at a temperature below 32° F. and a second compartment to be maintained at a refrigerating temperature above 32° F., a casing surrounding a major portion of said first compartment and having an air inlet into and an air outlet from said first compartment; a refrigerating system having a refrigerant liquefier and a refrigerant evaporator, one portion of said evaporator surrounding said casing and another portion of said evaporator being relatively remote from said casing; a first fan for circuiting air from said air outlet past said one portion of said evaporator. . . .

2,900,807. DEFROSTABLE EVAPORATOR STRUCTURE. Douglas A. Solley, Jr., Fern Creek, and Kenneth A. Robbie, Louisville, Ky., assignors to General Electric Co., a corporation of New York.



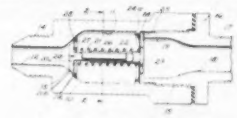
1. A defrostable refrigerant evaporator structure comprising an evaporator composed of three sheets of metal bonded together, a refrigerant circuit between the intermediate sheet and one of the outer sheets including a serpentine passage and an accumulator portion composed of a plurality of closely spaced intersecting passages each having approximately the same dimensions as said serpentine passage, and a defrost circuit between said intermediate sheet and the other outer sheet. . . .

2,900,891. ROOM AIR CONDITIONING SYSTEM. Laurent J. Schutte, Elm Grove, Wis., assignors to Super-Steel Products Co., Milwaukee, Wis.



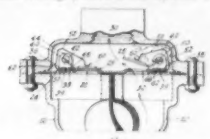
1. A room air conditioning system adapted to be disposed on the inside of a wall containing a series of windows and a window sill therefor, comprising a plurality of open ended like casing units, each unit comprising a top panel adapted to be disposed as an extension of the window sill, a front panel adapted to be spaced from the wall and to support said top panel from the floor with the top panel extending into the room from said front-panel. . . .

2,900,999. VALVE SEAL. Louis B. Courtot, Euclid, Ohio, assignor to The Weatherhead Co., Cleveland, Ohio.



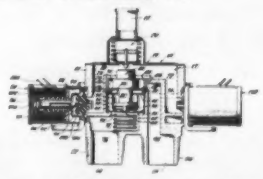
In a valve body having a bore therethrough, a conical valve seat formed as part of said bore, a single piece metallic valve poppet element including a stem, said valve poppet element having a head portion with an outer conical surface substantially complementary to that of said conical valve seat, said valve poppet element head portion having an annular resilient lip portion integral with said head portion and flaring outwardly therefrom, said lip portion having an outer generally conical surface having a vertex angle greater than that of said conical surface of said head portion. . . .

2,901,000. VALVE ASSEMBLY. George W. Wright, Yoder, Ind., assignor to Tokheim Corp., Fort Wayne, Ind.



1. A unitary valve assembly, comprising a sheet-metal plate having a port formed therethrough, a rim about said port deformed from the plane of the plate to form a raised valve seat, a bracket carried by said plate adjacent said seat and forming a pivotal valve support on an axis substantially elevated above the plate of said seat....

2,901,174. THERMOSTATICALLY CONTROLLED MIXING VALVES. Charles D. Branson, Greensburg, Pa., assignor to Robertshaw-Fulton Controls Co., Greensburg, Pa.



2. In a mixing valve, a casing having hot and cold fluid inlets and an outlet, a cylindrical shaped body member formed in said casing and having an open end and an orifice opposite said open end, means forming a first passage connecting said hot fluid inlet with said open end, means forming a second passage connecting said cold fluid inlet with said orifice, means forming a third passage connecting said body member with said casing outlet, control means responsive to an external condition for controlling fluid flow in said third passage. . . .

2,901,226. COMBINATION AIR CONDITIONER-CONVECTOR. Arthur B. Modine, Racine, Wis., assignor to Modine Mfg. Co., Racine, Wis.

1. A combination heat exchanger for convection or forced air operation, comprising a cabinet having an air inlet adjacent the bottom thereof and an air outlet positioned above said inlet, a heat exchange element operatively positioned intermediate said air in-

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OVERSEAS EMPLOYMENT wanted. Broad experience and training in installation, sales, engineering, and administration in air conditioning, refrigeration, and related mechanical construction. Six years overseas including military construction. Interested in responsible job with manufacturer, dealer, or on major construction project. FENTON DANCY, 1702 Council Bluff Drive, Atlanta, Georgia.

ALL ROUND refrigeration - air conditioning field service engineer seeks position anywhere in the U. S. Immigrant from the Netherlands. Free to travel and settle permanently. Fully conversant workshop practice, overhaul, repairs, installations, all types of industrial, commercial, marine, domestic refrigeration, air conditioning, electric, and auxiliary equipment. Held similar position for last 12 years in Far-East and East-Africa. Reply: FOE KONING, 4 Harold Street, Chelmsford, Mass.

REFRIGERATION AIR conditioning service man, 15 years' experience, domestic, commercial equipment to 150 ton, some heating and other appliances, Certificate member of RSES, 5 years foreman in Civil Service, desires permanent employment in sales service or both. Prefer Florida, Texas, California buy any area considered. GERALD GRUBER, 912 Cedar, Salina, Kansas.

ESTABLISHED MANUFACTURER'S agent with strong industrial and commercial following seeks major air conditioning and refrigeration line for New Jersey, lower New York, and Eastern Pennsylvania. Write to: BOX A6429, Air Conditioning, Heating & Refrigeration News.

POSITIONS AVAILABLE

REFRIGERATION AND air-conditioning service mechanics with five years' experience in super-market field are needed to service "Acme Super Markets" in Long Island and North Jersey. Send resume to: W. COLSON, 185 Washington Street, Newark 1, New Jersey.

EXECUTIVE SALES position in refrigeration equipment with AAA rated national manufacturer. Areas in Ohio, Texas, New Jersey, and Illinois. Experience in commercial refrigeration sales and sales to refrigeration jobbers desirable. Complete compensation plan

includes salary, bonus, and expenses. Send resume. All replies kept strictly confidential. BOX A6412, Air Conditioning, Heating & Refrigeration News.

PRODUCTION MANAGER. Assume complete charge of production of packaged air conditioners. Location 50 miles from N.Y.C. State experience, education, age and salary requirements. Reply to BOX A6427, Air Conditioning, Heating & Refrigeration News.

MECHANICAL CONTRACTOR requires, (1) project engineer, capable of complete job control. Job requires handling of labor, purchase of equipment and materials, progress scheduling and control of costs. Also, (1) estimator experienced on plumbing-piping take off and working knowledge of air conditioning and refrigeration. Location, west coast of Florida. Salary open. Required immediately. These openings are on a permanent basis. BOX A6428, Air Conditioning, Heating & Refrigeration News.

REPRESENTATIVE, WEST Coast. Calling on refrigeration supply jobbers for established line of relays, start and run capacitators, etc. Warehouse facilities desirable but not essential. Send details as to experience and territory covered. BOX A6430, Air Conditioning, Heating & Refrigeration News.

REFRIGERATION AND air conditioning parts and equipment salesman in New York City area to work for wholesale supply house. Salary and/or commission open. Reply stating qualifications, references, desired wages. Unlimited opportunity. Sales experience preferred. Box A6431, Air Conditioning, Heating & Refrigeration News.

PROJECT ENGINEER — Capable of assuming responsibility for design and development of medium size packaged chillers, packaged air conditioners and air handling units. Excellent opportunity for growth with small progressive Midwest manufacturer. Send qualifications to BOX A6432, Air Conditioning, Heating & Refrigeration News.

EQUIPMENT WANTED

WANTED: MANUFACTURERS outdated, surplus or obsolete room air conditioners, commercial package units to 25 h. p.; residential add-on circuits, air or water cooled; ice makers. Open minded to consider lucrative distributorship. Write GRANDLICH CO., or AIRGARD SALES & SERVICE, 6430 W. National Ave., Milwaukee, Wis.

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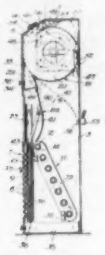
YORK REFRIGERATION equipment in original packing. Ammonia system. Capacity 19,200 cubic feet freezer 0°. 25,000 pounds produced daily 25°. Air condition units 7.8 tons. Open to offer. Additional information on request. Contact — BELLEMEAD DEVELOPMENT CORPORATION, 420 Seabreeze Boulevard, Daytona Beach, Florida. Telephone Clinton 2-3634.

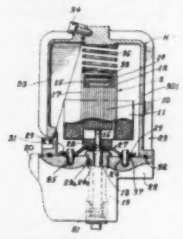
WAGNER ELECTRIC motors—one 30 h.p. and one 10 h.p. almost new—used only several months—1750 RPM—2 phase, 220/440-60. Standard frame. Make us an offer. SCHNACKE, INC., Evansville 7, Indiana, Air Conditioning Equipment Manufacturers.

let and said air outlet, power actuated blower means positioned in said cabinet having an air inlet communicating with the interior of the cabinet struc-



ture and provided with an air outlet arranged to discharge air from the cabinet. . . .

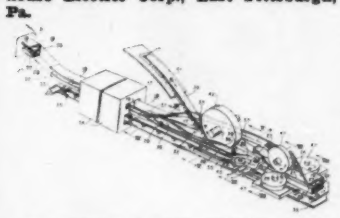
2,901,677. SOLENOID MOUNTING. Samuel C. Chessman and Kenneth H. Meyer, Salem, Ohio, assignors to Hunt Valve Co., a corporation of Ohio.



1. For use with a movable mechanism including a rigid member providing a supporting surface, a solenoid having a core, a coil, and a plunger movable by energization of said coil, a mounting plate rigidly connected to the core of said solenoid for supporting the latter from said supporting surface in operable relation with said movable mechanism whereby said plunger is positioned to operate the same, and resilient means interposed between said mounting plate and said supporting surface for cushioning said mounting plate against shock caused by movement of said plunger.

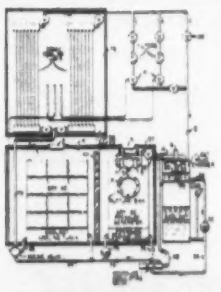
Week of Sept. 1

2,901,872. REFRIGERATION APPARATUS. Robert R. Dixon, Upper Arlington, Ohio, assignor to Westinghouse Electric Corp., East Pittsburgh, Pa.



The method of manufacturing refrigerator gaskets or the like comprising the steps of forming an elongated hollow body of resilient material with a continuous longitudinal opening therein and longitudinal interlocking portions disposed on either side of said opening, spreading apart said interlocking portions of said body to enlarge the opening therein for permitting ingress to the interior of said body, inserting a plurality of magnet members through the enlarged opening thus formed and into the interior of said body and thereafter passing said enlongated body through a jig structure adapted to close said opening in said body and to guide said interlocking portions of the body into locked engagement.

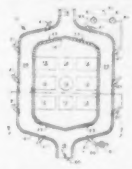
2,901,892. SECONDARY REFRIGERANT AND APPARATUS FOR CIRCULATING THE SAME. John E. Woods, Cohasset, Mass., assignor to Standard-Thomson Corp., Waltham, Mass.



1. A process for transmitting heat including the steps of applying superatmospheric gas pressure to a body of ethylene glycol monoethyl ether to circulate it in a circuit including a reservoir, a heat exchanger provided with a primary coolant, a heat exchanger in a space to be cooled and a collection chamber elevated from the reservoir and vented to atmosphere, and thereafter applying said gas pressure to the chamber to allow gravity flow from the chamber to the reservoir.

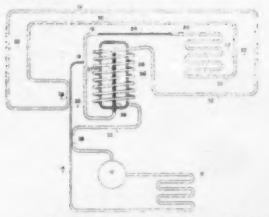
2,901,893. THERMAL DIFFUSION DESORPTION COOLING SYSTEM. Alvin R. Saltzman, Willow Grove, Pa.

5. A thermal diffusion cooling device comprising a first relatively smaller generally cylindrical inner container including a shell of heat conductive material enclosing and directly con-



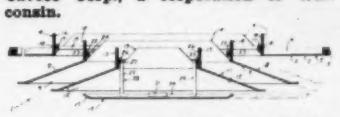
nected to a plurality of heat sources, a second relatively larger generally cylindrical outer container enclosing and uniformly spaced on all sides from said first container to form an annular passageway of a substantially constant transverse dimension therebetween fully enclosing said first container. . . .

2,901,894. REFRIGERANT CONTROL MEANS. Elmer W. Zearfoss, Jr., Philadelphia, Pa.



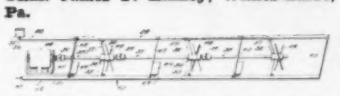
In a refrigeration system including a compressor, condenser, a capillary, an evaporator, and a suction line in a series flow path, of refrigerant control means comprising, an accumulator having a single bottom opening and being in heat exchange relation with said suction line, means defining a passageway communicating with the lower portion of said accumulator opening and with the line leading to said evaporator, and a riser within the accumulator in fluid communication with the upper portion of said accumulator and connected to said passageway means and having an opening therein near the bottom of said accumulator.

2,901,958. CONVERTIBLE DIFFUSEER. Wilbur R. Carnes, Madison, Wis., assignor, by mesne assignments, to Caveco Corp., a corporation of Wisconsin.



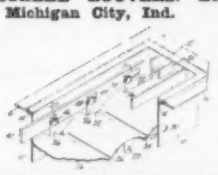
1. In a diffuser for the distribution of air the combination comprising an annular outer stationary supporting shell with a central opening defining an air passage arranged for communication with a ventilating duct and having an outwardly extending flanged mounting portion; a pair of longitudinally extending substantially parallel supporting slideways and a pair of mating slides therefor . . . .

2,901,959. AIR DISTRIBUTING SYSTEM. James F. Kinney, Wilkes-Barre, Pa.



1. An air distributing system for heated or cooled air comprising a plurality of aligned tubular manifolds, an inlet conduit connected to each of said manifolds, a pair of outlet conduits connected to each of said manifold, means including tubular frame members extending longitudinally along but through the walls of said manifolds, imperforate partitions carried by said frame members in longitudinally spaced parallel relation. . . .

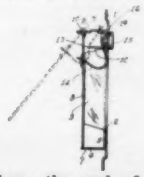
2,901,961. FLOOR REGISTER WITH ADJUSTABLE LOUVERS. Louis C. Cotts, Michigan City, Ind.



1. A floor register adapted for connection with a forced air circulating system, comprising a frame having side and end walls and defining an air outlet, a plurality of louvers pivoted in said frame on parallel axes and cooperating to substantially close said outlet in one position thereof, and means in said frame adjacent one end of said louvers for rocking a group of said louvers. . . .

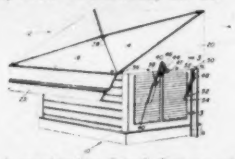
2,901,962. AIR DUCT REGISTER. Ray Derringer, University City, Mo., assignor to International Oil Burner Co., a corporation of Missouri.

1. In an air duct register, a face member adapted to cover an end of said duct and is provided with an opening therethrough, a closure plate pivotally hinged along one edge to the rear of said face member and is movable to adjustably angular positions relative to said face member for closing said opening, a bowed spring with



opposed legs, the end of one of said legs connected to said face member and the end of its other leg connected to said plate so that said legs resiliently spread apart through opening movement of said plate to retrievably urge the latter to its closed position....

2,901,989. PROTECTIVE HOOD FOR ROOM AIR CONDITIONERS. Don P. Mondi, New Brunswick, N. J.

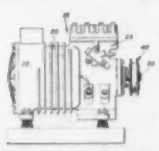


1. A protective hood for an air conditioning apparatus and container comprising a shaped rigid sheet of material including a pair of vertical opposed side portions, a rear portion perpendicular to said side portions, a downwardly sloping top portion between said side portions, means detachably securing said sheet in spaced relationship to the air conditioning container, said means comprising a strap secured to said sheet of rigid material and spaced from said top portion. . . .

2,902,089. TIME AND TIMED DELAY CONTROL. James U. Daly, Latrobe, Pa., assignor to Robertshaw-Fulton Controls Co., Greensburg, Pa.

4. A control device comprising a control element movable between operative and inoperative positions and biased to said inoperative position, actuating means operable against the bias of said control element for causing movement thereof to said operative position, first lever means biased for rotation in one direction from an initial position for operating said actuating means, second lever means biased for rotation in another direction and cooperable with the bias of said control element for preventing said rotation of said first lever means. . . .

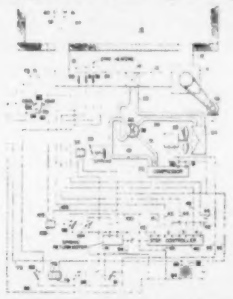
2,902,205. SEALED REFRIGERATION WITH AUXILIARY POWER PULLEY. Harold B. Parker, Loudenville, Ohio, assignor to Parker Refrigeration Development Co., a corporation of Ohio.



1. In a refrigeration unit mounted in a mobile vehicle having a combustion engine provided with an accessory power shaft independent of the drive shaft employed for propelling the vehicle, the refrigeration unit being required to operate substantially continuously from an auxiliary power source when the vehicle is inoperative; that improvement which comprises a sealed casing including a compressor and electric motor housed within the casing with the casing conforming in shape and size to the compressor and motor. . . .

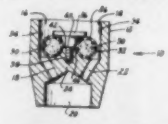
2,902,220. CONTROL APPARATUS FOR A PLURALITY OF CONDITION CHANGING DEVICES. Edward A. Myck, Jr., Edina, and Ralph T. Osen, Golden Valley, Minn., assignors to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

1. In air conditioning apparatus having means to heat a space including a heat pump and a plurality of auxiliary electrically operable heat furnishing means, motor driven switch means having a plurality of switches which are operated to close in sequence upon energization of said motor, a first switch of said plurality of



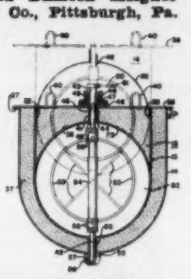
switches closing after a predetermined forward movement of said motor, temperature responsive switch means responsive to the temperature of said space, relay means having a coil and a pair of switches operated thereby. . . .

2,902,222. THERMOSTATIC FLOW CONTROL DEVICE. Thomas E. Noakes, Detroit, Mich., assignor, by mesne assignments, to American Radiator & Standard Sanitary Corp.



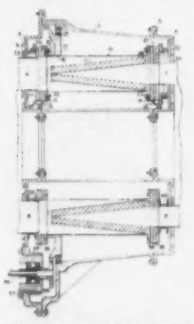
1. A thermostatic flow control device comprising an open-ended tube; a wall extending across an intermediate portion of said tube to define an inlet chamber and an outlet chamber; at least one opening extending through said wall in the area thereof adjacent the tube side wall; a one piece annular envelope of deformable material positioned on the upstream face of said wall with its outer peripheral surface closely adjacent the tube side. . . .

2,902,254. BUTTERFLY TYPE VALVE. Leon P. Conway, Whitehall, and Henry Hayward Dinneen, Mount Lebanon Township, Allegheny County, Pa.; said Dinneen assignor to Rust Furnace Co., Pittsburgh, Pa.



1. In a butterfly type valve, comprising, a casing having a longitudinally extending flow passageway, said casing being formed of a pair of U-shaped nested shells of different transverse dimensions the upper edge of which terminates in a common plane, the longitudinal dimension of said U-shaped shells defining a first and second end of said casing, spaced pairs of plates extending transversely of said casing, one pair of said plates being joined to the first and second ends of said U-shaped shells, the other pair of plates being joined to the U-shaped shell which is of a lesser transverse dimension. . . .

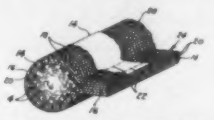
2,902,267. ROTARY REGENERATOR SEALS. Donald G. Rich, Syracuse, N. Y., assignor to Carrier Corp., Syracuse, N. Y.



1. A rotary regenerator adapted to condition a second stream of fluid with the properties of a first stream of fluid comprising a housing, a plurality of ducts leading to and from said housing for conducting said streams of fluid, a rotor mounted in said housing, a plurality of chambers annularly disposed within said rotor to provide paths through said regenerator for said streams of fluid, motor means coupled to said rotor to rotate said rotor thereby causing each of said chambers to be alternately presented to said first and second streams of fluid passing through said regenerator. . . .

2,902,305. GASKETS AND METHOD OF MAKING THE SAME. Emil J. Poltorak, Somerville, N. J., assignor to Johns-Manville Corp., New York, N. Y.

1. A gasket comprising a resilient, flexible, compressible, open or porous, fluid pervious core, said core having a flexible cover thereon comprising a thin, continuous, rupturable, flexible, fluid-impervious plastic sheet of poly-



meric sealing material separate from the core and a separate flexible layer of knitted, open metal mesh outwardly of said sheet and in contact therewith and free for at least limited movement with respect thereto, and providing protection for said sheet.

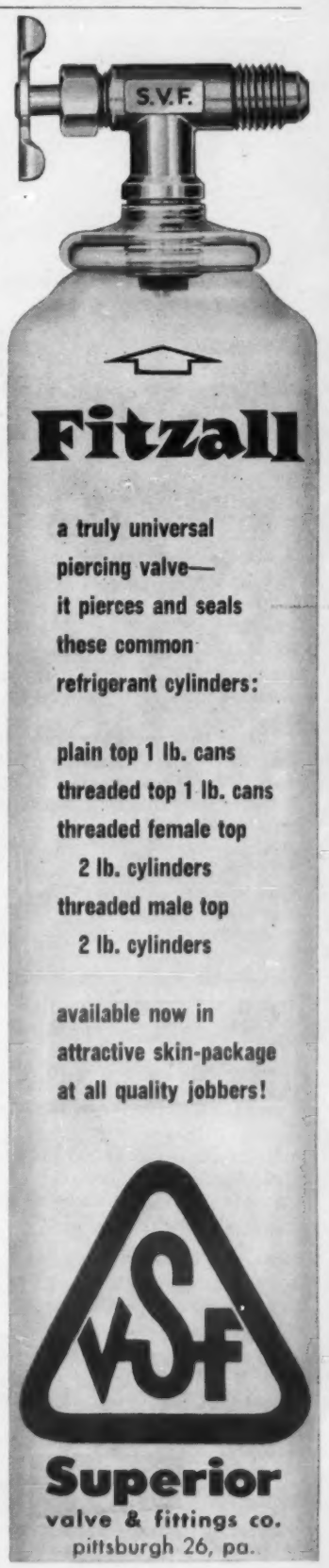
2,902,529. THERMOELECTRIC MATERIALS AND ELEMENTS UTILIZING THEM. Charles J. Busanovich, Princeton, N. J., assignor to Radio Corp. of America, a corporation of Delaware.

1. A thermoelectric alloy consisting essentially of Bi_2Te_3 alloyed with from 0.82% by weight to 1.64% by weight of at least one other compound selected from the group consisting of CuS, Cu_2S, Ag_2S, CuSe, Cu_2Se, and Ag_2Se.

(To Be Continued)

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Address orders to: Commissioner of Patents, Washington 25, D. C.



Hotpoint 1960 Lines--

(Concluded from Page 1, Col. 5)

cial insulation is also used in a new 17-cu. ft. upright freezer.

The air conditioner line includes three models in the "Powerhouse" series, three in the "Deluxe" series, and two in the "Budget" series.

In the Powerhouse series, ADL82A is an 18,000 B.t.u., 230-volt model; ADL62A is a 15,000 B.t.u., 230-volt model; ADL52A is a 12,000 B.t.u., 230-volt model.

Features of the Powerhouse series include a "master mind" control panel which "puts complete control of the air conditioner at the user's fingertips" and a thermostatic temperature control. Another feature is a switch which allows user to switch from high daytime fan speed to a quieter speed at night.

The compressor is mounted on springs. Its two-speed fan is anchored in rubber to absorb vibration and the entire cooling chamber is insulated with sound deadening material.

In the Deluxe series, ADK42A is a 10,000 B.t.u., 230-volt model; ADK31A is a 9,000 B.t.u., 12-amp., 115-volt model; ADK27A is a 7,500 B.t.u., 7½-amp., 115-volt model. This series has the same deluxe features as the Powerhouse series, it was stated.

Budget series units are ASK32A, an 8,500 B.t.u., 230-volt model; and ASK21A, a 7,500 B.t.u., 12-amp., 115-volt model. Features include "master mind" single-knob control panel for on/off and thermostatic temperature control, and special insulation for quiet operation.

Do-It-Yourself Book

For 1960 Hotpoint also offers a "do-it-yourself" installation booklet showing how all eight 1960 models can be installed by the purchaser with simple household tools, the announcement said.

The special insulation used in the new 18-cu. ft. combination refrigerator-freezer and 17-cu. ft. upright freezer is called "Wonderwall."

"It has been in use and tested in several thousand Hotpoint refrigerators and freezers, having been installed on regular production lines in sample quantities during the past two years," the company said.

Wonderwall is a lamination of plastic films and Kraft paper with fiber glass which, in combination and assembled by Hotpoint, is made up into various sizes to fill sides, backs, and doors of the new refrigerators and freezers. Hotpoint has designed special equipment for the manufacture of this insulation at its plant in Chicago.

No-Frost Freezer

The 18-cu. ft. two-door combination CP18A is an 11.5-cu. ft. refrigerator and a 6.6-cu. ft. freezer. Two shelves and the vegetable crisper in the refrigerator section and a large basket in the freezer swing out. There's a special sliding basket inside the swingout basket.

"In addition to a no-frost refrigerator section," the announcement said, "Hotpoint introduces a new no-frost freezer section. The new 'no noise-no fan' system is similar to the system that Hotpoint has been using on its refrigerator section for several years."

Ten other refrigerator models are offered—two 14-cu. ft. combination, four 12-cu. ft. models, two 11-cu. ft. models, and two 8-cu. ft. models.

Hotpoint's 1960 food freezer line consists of three upright and four chest-type models.

Newest of the line is the 17.3-cu. ft. two-door upright freezer (FR17A) which holds 606 lbs. of frozen foods at zero temperatures, Hotpoint said. The upper section holds 375 lbs. and the lower section 231 lbs. of frozen foods.

This freezer is claimed to fit into a floor space of a 12-cu. ft. freezer due to use of the new insulation. The freezer walls are only 1½ in. thick, the company stated.

FEATURED ON THIS model Hotpoint room air conditioner for 1960 is a manual thermostat which permits the user to set the conditioner to exact degree of cooling desired. Models range from 7,500 to 18,000 B.t.u. capacity.

The freezer basket on the bottom section swings out. Other features of the 17-cu. ft. upright include automatic temperature control, seven door shelves, special juice rack that loads from the top and dispenses from the bottom, reserve ice cube container which holds 5 dozen cubes, and locks for both doors.

Two 12-cu. ft. uprights are offered for 1960; medium priced FP12A and budget priced FL12A, both 423-lb. capacity freezers. Both are style matched to 1960 refrigerators.

Hotpoint retains the chest-type freezers for 1960 with little change in the line from last year. Four chest types are offered, ranging from a 438-lb. freezer to a two-door 914-lb. freezer.

L. A. Code--

(Concluded from Page 1, Col. 3)

refrigeration code, are expected to be passed by the city council some time this month or in February, according to the Institute of Heating and Air Conditioning Industries.

After enactment, both codes and the city plumbing code will be published in a single volume, the institute said.

Institute officials said the final draft of the heating-cooling code coincide exactly with institute recommendations.

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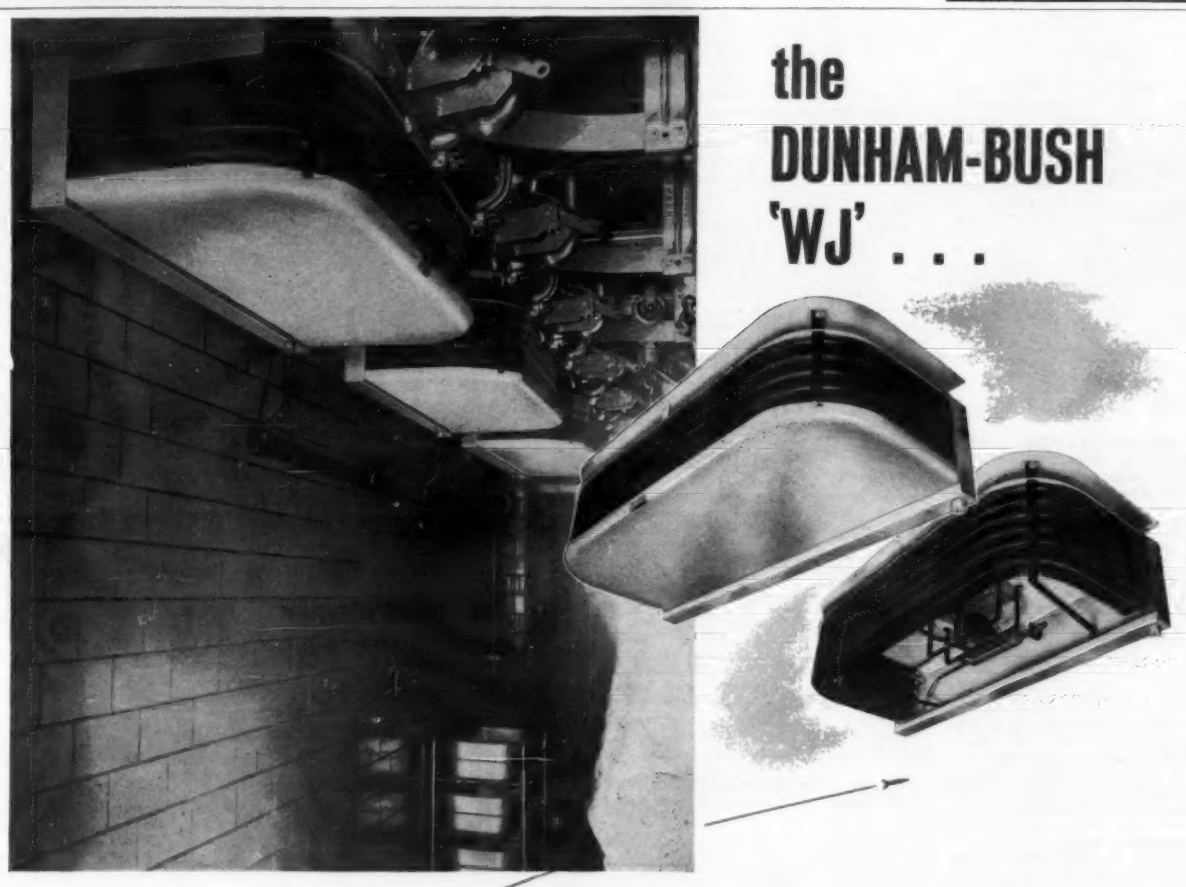

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